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IMPLEMENTATION OF LAVENDER AROMATHERAPY (LAVANDULA ANGUSTIFOLIA) TO OVERCOME INSOMNIA WITH SLEEP PATTERN DISORDERS IN ELDERLY AT UPT PSTW JEMBER : CASE STUDY

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ABSTRACT

Background: Elderly individuals often experience sleep pattern disturbances due to aging processes and environmental factors. These disturbances can reduce their quality of life. Lavender aromatherapy has a relaxing effect that may help alleviate insomnia. This study aims to determine the effectiveness of lavender aromatherapy in addressing sleep disturbances among the elderly at UPT PSTW Jember. **Methods:** A case study with purposive sampling was used involving one elderly individual at UPT PSTW Jember. The intervention, conducted over seven days, combined gerontological nursing care with lavender aromatherapy. **Results:** Pre- and post-intervention data using the KSPBJ-IRS scale indicated improvement: the score reduced from 26 (mild insomnia) to 13 (no insomnia). **Conclusions:** Lavender aromatherapy combined with sleep support was effective in improving sleep quality in elderly individuals with insomnia.

Keywords: Insomnia, Lavender Aromatherapy, Elderly, Gerontological Nursing, Sleep Pattern

Introduction

Elderly individuals represent the final stage of the human life cycle, physiologically characterized by a decline in bodily functions, including cognitive, psychomotor abilities, and the capacity to manage stress (Suhari et al., 2019). This degenerative condition significantly increases the risk of sleep disorders, particularly insomnia (Amanah et al., 2022), even though older adults generally require a shorter sleep duration compared to younger adults (Mahyuvi et al., 2021). Prolonged sleep deprivation can trigger nursing problems, such as disturbed sleep patterns, which are characterized by changes in sleep duration and quality due to external factors (PPNI, 2017a). Globally, the elderly population is projected to continuously (Andani & Widodo, 2023), with approximately 19.1% of the global population experiencing sleep disorders and showing a substantial annual increase (Juwita et al., 2023). In Indonesia,

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the prevalence of sleep disturbances among the elderly reaches 67%, and in East Java, about 45% of older adults report nocturnal sleep difficulties (Yanti et al., 2024). A preliminary study conducted at UPT PSTW Jember even identified that 80% of elderly residents suffered from insomnia (Muthoharoh, 2024), a condition closely related to the aging process affecting circadian rhythms and the distribution of vital neurotransmitters (Amanah et al., 2022).

Chronic insomnia in older adults has implications for various systemic health problems, ranging from immune function decline to mood instability and decreased concentration (Andani & Widodo, 2023). In its management, non-pharmacological interventions are considered safer and more effective than pharmacological therapies (PPNI, 2017b). One promising non-pharmacological approach is lavender aromatherapy. The main compound of lavender, linalool, is known to have a sedative effect by stimulating the parasympathetic nervous system (Nasiri & Fahimzade, 2017). Several previous studies have confirmed the significant effectiveness of lavender aromatherapy in improving sleep quality in the elderly (Mahyuvi et al., 2021; Nasiri & Fahimzade, 2017; Siagian, 2020)

Based on this background, this study holds high urgency given the significant impact of insomnia on the quality of life of older adults and its substantial prevalence at UPT PSTW Jember. The primary objective of this research is to examine the implementation of lavender aromatherapy (Lavandula angustifolia) to reduce insomnia in older adults with disturbed sleep patterns at UPT PSTW Jember. The novelty of this research lies in its focus on practical and in-depth implementation within a nursing home environment, as well as the use of a humidifier with a larger aromatherapy dose, which allows for a more comprehensive understanding of the application of this intervention in the context of daily elderly care.

Methods

This study adopted a single descriptive case study design. One elderly participant residing at UPT PSTW Jember, identified as experiencing mild insomnia based on initial screening, was selected using purposive sampling. The intervention administered was the application of Lavandula angustifolia essential oil aromatherapy diffused via a cold-mist ultrasonic humidifier. The intervention protocol was carried out for 15–20 minutes each night, consistently for seven consecutive days, using a dose of 10 drops diffused in the participant's sleeping area. Data were collected quantitatively through the administration of the KSPBJ-IRS questionnaire during the pre-intervention and post-intervention phases, complemented by qualitative data obtained through structured interviews and observations to comprehensively explore the participant's sleep experience.

Results

The nursing assessment of Mr. G, an elderly resident at UPT PSTW Jember, identified mild insomnia characterized by

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difficulty initiating and maintaining sleep, non-restorative sleep, daytime fatigue, and associated symptoms, worsened by environmental factors and his history of right leg amputation. His blood pressure was 140/90 mmHg, and the KSPBJ-IRS questionnaire indicated mild insomnia. Nursing interventions focused on sleep support, including monitoring sleep patterns, modifying the environment, stress reduction through listening to the radio, education on sleep hygiene, and non-pharmacological therapy with lavender aromatherapy. Following the intervention, Mr. G reported improved sleep quality, increased ability to initiate sleep, and reduced fatigue; physical signs improved with blood pressure at 130/80 mmHg, and his insomnia score dropped to 13, indicating resolution. The intervention will continue under his and the care team's supervision.

Table 1. KSPBJ-IRS Scores Before and After Intervention

Day	Score
Day 1	26
Day 7	13

Discussion

This discussion presents the significant success of lavender aromatherapy intervention in Mr. G (79 years old) who experienced insomnia, as demonstrated by a drastic reduction in his insomnia score from 26 to 13 after seven days of intervention, reaching the 'no insomnia' category. These results convincingly demonstrate the effectiveness of lavender aromatherapy in insomnia management and are consistent with previous literature, such as studies by (Romadhon & Rahmawaty (2022) as well as Mahyuvi et al (2021), Nasiri & Fahimzade (2017), and Siagian (2020), which indicate that linalool compounds in lavender stimulate the production of serotonin and melatonin, leading to a relaxation effect and improved sleep quality. The essential novelty of this study lies in its practical implementation within the UPT PSTW Jember environment and the use of a cold-mist ultrasonic humidifier with a larger aromatherapy dose (10 drops), which not only provides an efficient application method but also potentially optimizes the therapeutic effect in an institutional setting.

Although this study demonstrates the great potential of lavender aromatherapy as an effective, safe, and minimally side-effect non-pharmacological approach for insomnia management in the elderly, there are several limitations that need to be acknowledged. The single case study design, while allowing for an in-depth understanding of individual responses, inherently limits the generalizability of the findings to a broader elderly population. The potential for a placebo effect and the absence of a control group are also methodological limitations that should be considered. Therefore, future research with a more robust design, such as randomized controlled trials with larger sample sizes, is highly recommended to more comprehensively confirm and generalize the effectiveness of this intervention.

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Conclusion

Based on this case study, it is concluded that the implementation of lavender aromatherapy (Lavandula angustifolia) proved effective in reducing insomnia among elderly individuals with sleep pattern disturbances at UPT PSTW Jember, as demonstrated by the decrease in Mr. G's insomnia score from 26 to 13 after seven days of intervention using a humidifier with a dose of 10 drops. Therefore, it is recommended that nursing practitioners integrate this effective and safe non-pharmacological therapy into gerontological care. However, to confirm the generalizability of these findings, further research with a more robust design and larger sample size is highly recommended.

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