

## Artikel Penelitian

# Comparison of the Effectiveness of Traditional Massage with and Without Lemongrass Aromatherapy in Alleviating Menopausal Symptoms

Risqi Wahyu Susanti<sup>1</sup>, Abd. Gani Baeda<sup>2</sup>, Tukatman<sup>3</sup>

## Abstrak

Menopause merupakan fase alamiah yang dialami oleh semua wanita, ditandai dengan berhentinya menstruasi dan sering kali disertai dengan gejala penurunan estrogen. Dengan meningkatnya harapan hidup wanita, sebagian besar akan menghabiskan tahun-tahun yang signifikan dalam fase menopause, menghadapi berbagai gejala fisik dan psikologis yang mengganggu kualitas hidup mereka. Penelitian ini bertujuan untuk membandingkan efek pijat tradisional dengan dan tanpa kombinasi aromaterapi serai terhadap gejala menopause. Metode penelitian ini menggunakan quasi-eksperimental dengan desain pretest dan posttest dengan dua perlakuan perbandingan pada 40 wanita berusia 40-60 tahun, dibagi menjadi dua kelompok. Kelompok pertama menerima pijat tradisional dengan minyak serai dan aromaterapi serai, sedangkan kelompok kedua menerima pijat tradisional dengan minyak serai saja. Pengukuran dilakukan sebelum dan satu minggu setelah intervensi, menggunakan Menopause Rating Scale (MRS) untuk menilai gejala menopause. Hasil: Skor gejala menopause menurun secara signifikan pada kedua kelompok setelah intervensi. Kelompok pijat aromaterapi menunjukkan penurunan skor gejala rata-rata dari 14,80 menjadi 5,60 ( $p=0,000$ ), sedangkan kelompok pijat tradisional menunjukkan penurunan dari 11,34 menjadi 4,65 ( $p=0,000$ ). Perbandingan antara kedua kelompok menghasilkan nilai  $p$  sebesar 0,197, yang menunjukkan tidak ada perbedaan signifikan dalam pengurangan skor gejala, meskipun kelompok pijat aromaterapi mengalami penurunan gejala menopause yang lebih besar daripada kelompok yang hanya dipijat. Tidak ada perbedaan signifikan dalam pengurangan gejala menopause antara kelompok yang menerima pijat dengan dan tanpa aromaterapi serai; namun, kedua intervensi sama-sama efektif dalam mengurangi gejala menopause. Penelitian lebih lanjut diperlukan untuk meningkatkan frekuensi pijat aromaterapi serai.

**Kata kunci:** Aromaterapi serai; Menopause; Kesehatan Wanita; Pijat tradisional

## Abstract

Menopause is a natural phase experienced by all women, marked by the cessation of menstruation and often accompanied by symptoms of estrogen decline. With the increasing life expectancy of women, most will spend significant years in the menopausal phase, facing various physical and psychological symptoms that disrupt their quality of life. Objective: This study aims to compare the effects of traditional massage with and without the combination of lemongrass aromatherapy on menopausal symptoms.: This is a quasi-experimental study with a pretest and posttest design with two comparison treatments on 40 women aged 40-60 years, divided into two groups. The first group received traditional massage with lemongrass oil and lemongrass aromatherapy, while the second group received traditional massage with lemongrass oil only. Measurements were taken before and one week after the intervention, using the Menopause Rating Scale (MRS) to assess menopausal symptoms. Results: Menopausal symptom scores significantly decreased in both groups after the intervention. The aromatherapy massage group showed a decrease in the average symptom score from 14.80 to 5.60 ( $p=0.000$ ), while the traditional massage group showed a decrease from 11.34 to 4.65 ( $p=0.000$ ). The comparison between the two groups yielded a  $p$ -value of 0.197, indicating no significant difference in symptom score reduction, although the aromatherapy massage group experienced a greater decrease in menopausal symptoms than the massage-only group. There is no significant difference in the reduction of menopausal symptoms between the groups receiving massage with and without lemongrass aromatherapy; however, both interventions are equally effective in reducing menopausal symptoms. Further research is needed to increase the frequency of lemongrass aromatherapy massage.

**Keywords:** Lemongrass aromatherapy; Menopause; Traditional massage; Women's health

Submitted: 8 September 2024

Revised: 29 December 2024

Accepted: 30 December 2024

**Affiliasi penulis :** 1,2,3 Fakultas Sains dan Teknologi, Universitas Sembilanbelas November Kolaka)

**Korespondensi :** [abganbaeda@gmail.com](mailto:abganbaeda@gmail.com) Telp : 082393276800

## INTRODUCTION

Menopause is a phase that occurs in every woman, marked by the cessation of menstruation, with the average age of menopause being around 51 years old. During this stage, symptoms of decreased estrogen alongside natural aging in women with longer life expectancies occur (1). The

global life expectancy for women in 2023 was 76 years (2). The life expectancy for women in Indonesia in 2021 was 73.55 years (3), in 2022 the life expectancy for women in Indonesia was 73.83 years (4), in 2021, the life expectancy for women in Southeast Sulawesi was 73.37 years (3). In 2022, the life expectancy for women in Southeast Sulawesi was 73.47 years (3). In 2021, the life expectancy for women in Kabupaten Kolaka was 71.21 years, and in 2022, it was 71.30 years (5).

With the increasing life expectancy of women, most will undergo the transition of menopause and spend a significant portion of their lives in this phase. The menopausal transition involves various physical, endocrine, and psychological changes influenced by ethnic, psychological, and sociocultural factors. Each woman's experience during the menopausal transition is unique, and a comprehensive approach to symptom management is essential for successful outcomes (6). Menopause can lead to psychological issues such as poor memory and concentration, depression, anxiety, irritability, and high distress levels, with anxiety and depression being the two most common problems that can significantly disrupt women's lives (7).

Hormone therapy is an effective treatment for menopausal symptoms if there are no contraindications or major comorbidities (8), however, not all women are willing or able to undergo this therapy due to its availability in certain areas and economic factors, as well as the health risks associated with hormone therapy such as endometrial cancer and cardiovascular disease (9). As a result, many women turn to complementary and alternative therapies to alleviate menopause-related symptoms (10). Literature studies indicate that some complementary therapies for menopausal symptoms include aromatherapy and massage (10,11). In Indonesia, massage has long been known as traditional massage, and it can improve the mental health of menopausal women, partially restore Menopause Rating Scale scores, and halt declines in Body Image Perception scores (12). Meanwhile, lemongrass is a plant commonly found in Indonesia, especially in Sulawesi. Lemongrass essential oil may potentially affect cognitive function by strengthening neural connections between

the prefrontal cortex and related brain areas, as well as increasing neurotransmitters like dopamine, thereby providing positive effects, especially on alertness and self-calming (13).

However, there is currently no research comparing the effects of traditional massage combined with lemongrass aromatherapy to traditional massage without lemongrass aromatherapy on menopausal symptoms in women in Indonesia. Although traditional massage and aromatherapy have been identified to benefit menopausal women, no study has specifically compared the effects of traditional massage combined with lemongrass aromatherapy and traditional massage without lemongrass aromatherapy on menopausal symptoms in Indonesia. Research investigating this combination is essential to identify a more effective approach to managing menopausal symptoms, particularly within the Indonesian cultural context, especially in Southeast Sulawesi.

Therefore, this study aims to determine the comparison of the effects of traditional massage with and without lemongrass aromatherapy on menopausal symptoms in women.

## METHODS

This study is quantitative research with a quasi-experimental design using a pretest and posttest design with two comparison treatments conducted in Kabupaten Kolaka from May 2nd to May 23rd, 2024. The study is divided into two groups recruited: the first group received traditional massage therapy using lemongrass oil combined with lemongrass aromatherapy for 1 session per week lasting 45 minutes per session, while the control group only received massage therapy using lemongrass oil for 1 session per week lasting 45 minutes per session. The massage areas include the back for 25 minutes and the shoulder, neck, head, and face for 20 minutes.

Outcome measurement (menopausal symptoms) in both groups is conducted before and after 1 week of therapy. The population of this study is women aged 40-60 years in Kabupaten Kolaka. The sample of this study must meet the inclusion criteria: 1)

Experiencing a decrease in menstrual cycles in the last 3 months; 2) Showing at least two of the following menopausal symptoms: flushing, sweating, difficulty sleeping, mood swings, urinary incontinence, and/or vaginal dryness; 3) Not allergic to lemongrass; 4) Able to read and write; 5) Willing to participate in the research. Exclusion criteria: 1) Having contraindications to traditional massage such as fractures and other contraindications; 2) Olfactory disturbances; 3) Undergoing hormonal therapy; 4) Undergoing other complementary therapies; 5) Having mental disorders or serious psychological problems; 6) Having uncontrolled clinical conditions such as systemic arterial hypertension, use of psychotropic drugs, substance abuse, cancer, etc.

The sampling technique in this study is purposive sampling, by taking samples according to the criteria until the desired number is met. The sample size in this study uses the sample size estimation formula for comparative studies (14) as Formula 1. In which :  $n$  = Sample size for one group

$p_1$  and  $p_2$  = Proportion of two groups, in this study  $p_1=60\%$  and  $p_2=20\%$

$C$  = Standard value for the  $\alpha$  and  $\beta$  levels selected for this study is 7.85 (95% CI and 80% power)  $n=2.5*7.85=19.6=20$  sampel.

The sample size in one group is 20 samples, so the total sample size in this study is 40 samples. The study collected primary

data through assessments conducted before and after the intervention in both groups. The intervention was carried out in a closed room using available tools and materials such as lemongrass massage oil, aromatherapy diffuser, lemongrass essential oil, gloves, masks, and a massage bed. The questionnaire used to measure the outcome of menopausal symptoms in the study was the Menopause Rating Scale (MRS), consisting of 11 questions covering somatic, psychological, and urogenital domains. Prior to conducting this research, the researcher obtained ethical approval from the IAKMI Sultra ethics committee and was approved with No. 110/KEPK-IAKMI/IV/2024.

The data collected from the questionnaire were processed by entering them into a master table and then subjected to editing and cleaning. Numeric data analysis began with testing the normality of the numeric data using the Kolmogorov-Smirnov test, followed by analyzing to find the mean  $\pm$  standard deviation values. The difference between the two groups was analyzed using an independent t-test (for normally distributed data). Data analysis was performed using the SPSS application with a confidence level of 0.05 (15).

## RESULT

The characteristics of respondents in the aromatherapy massage group and massage group can be seen in the Table 1.

**Table 1.** Characteristics of Research Respondents

Variable	Aromatherapy group		massage		p-value
	f	%	f	%	
Age (year)	48±5.399		48±6.051		0.562 <sup>^</sup>
Age at menarche (years)	14±1.373		14±1.917		0.36 <sup>^</sup>
Education					0.626 <sup>*</sup>
Elementary school	0	0	4	20	
High school	7	35	9	45	
Diploma	4	20	2	10	
Bachelor	5	25	4	20	
Master	4	20	1	5	
Number of Children	3 ±1.877		3±1.773		0.80 <sup>^</sup>
Menopausal symptoms	14.80±6.412		11.35±5.153		0.035 <sup>^</sup>

Mean±SD, <sup>\*</sup>Cramer's v, <sup>^</sup>Paired t-test

The results of this study indicate that the characteristics of the age of respondents in the aromatherapy massage group and the massage group have an average age of 48 years. Meanwhile, the age at menarche in

both groups is also the same, averaging 14 years. The highest level of education in both groups is dominated by high school graduates, with each group of aromatherapy massage being 7 (35%) and the massage group being 9 (45%). The average number of children in each group is 3 children, with the marital status of married being 18 (90%) in the aromatherapy massage group and 17 (85%) in the massage group.

The homogeneity test results in both groups show that for age, age at menarche,

education, and number of children, there is no difference between the two groups with  $p>0.05$ . However, there is a difference in menopausal symptom scores, with the aromatherapy massage group averaging 14.80 while the massage group averages 11.35.

The scores of menopausal symptoms before and after intervention in the aromatherapy massage group and the massage group can be seen in the Table 2.

Table 2. Differences in Menopausal Symptom Scores Before and After Intervention in the Aromatherapy Massage Group and the Massage Group

Group	Pre	Post	p-value	p-value
Aromatherapy massage group	14.80±6.412	5.60±5.888	0.000	0.197
Somatic	5.50±2.039	2.35±2.476	0.000	
Psychological	5.60±3.346	1.700±2.515	0.000	
Urogenital	3.70±1.976	1.55±1.791	0.000	
Massage group	11.34±5.153	4.65±4.095	0.000	
Somatic	4.65±1.814	2.05±1.877	0.000	
Psychological	4.30±2.154	1.65±1.725	0.001	
Urogenital	2.40±1.788	0.95±0.998	0.005	

The results of this study indicate that the menopausal symptom scores in the aromatherapy massage group decreased from an average of 14.80 to 5.60 with  $p=0.000$ , while in the massage group, they also decreased from an average of 11.34 to 4.65 with  $p=0.000$ . For the somatic, psychological, and urogenital domains, both groups also experienced a decrease in symptoms with  $p<0.05$ . There was no difference in anxiety scores between the two groups statistically with  $p=0.197$ , but clinically, the average score in the aromatherapy massage group appeared to decrease more compared to the massage group.

## DISCUSSION

Both groups in the aromatherapy massage treatment received traditional back massages for 25 minutes and massages on the shoulder, neck, head, and face areas for 20 minutes using lemongrass massage oil combined with lemongrass aromatherapy. Meanwhile, the massage-only group received

traditional back massages for 25 minutes and massages on the shoulder, neck, head, and face areas for 20 minutes using lemongrass massage oil. Measurement of outcomes to assess menopausal symptoms was conducted using the Menopause Rating Scale (MRS) questionnaire before the therapy was administered and reevaluated after 1 week of therapy.

The results of this study indicate that the menopausal symptom scores in both the aromatherapy massage group and the massage-only group decreased, as did each domain (somatic, psychological, and urogenital). This suggests that massage using lemongrass oil, whether combined with lemongrass aromatherapy or not, can reduce anxiety symptoms within 1 week after the intervention. However, the lemongrass aromatherapy massage group showed a clinically greater decrease in scores compared to the group receiving only massage therapy. This research is supported by a study conducted on 74 menopausal women, randomly divided into intervention (aromatic massage) and control (massage only) groups, which showed significant improvement in



somatic menopausal symptoms in the aromatic massage group after the intervention. This improvement was marked by a decrease in the frequency of hot flushes, paresthesia, vertigo, fatigue, myalgia, headache, palpitations, and formication. The comparison between the aromatic group and the massage-only group showed significant differences, with lower average scores in total somatic menopausal symptoms in the aromatic group. Aromatic massage with lavender, clary sage, jasmine, and rose oils can effectively alleviate somatic menopausal symptoms (16).

This study shows that lemongrass aromatherapy massage provides a decrease in menopausal symptoms not only in the somatic and psychological domains but also reduces menopausal symptoms in the urogenital domain, as previous studies have shown that the combination of frangipani essential oil with SSBM (slow stroke back massage) can improve sexual relations in menopausal women (17). In addition, another study showed that women who received massage therapy experienced significant improvements in many symptoms of the menopausal transition period such as decreased frequency of hot flushes and night sweats, decreased menstrual pain, decreased all urinary symptoms and dyspareunia. Very significant improvements were observed in psychological symptoms (18).

A study evaluated the effects of aromatherapy massage using peppermint and lemon oils on menopausal symptoms in menopausal and postmenopausal women. In this study, 63 participants were divided into three groups: peppermint oil, lemon oil, and placebo groups. Aromatherapy massage was performed twice a week for 4 weeks using essential oils diluted with sweet almond oil. The results showed that both essential oils effectively reduced menopausal symptoms, with peppermint oil being more effective than lemon oil (19).

Massage has an impact on the hypothalamic-pituitary-adrenal (HPA) axis and neurohormones, as well as the immune system. Massage tends to show effects such as reducing plasma and

salivary cortisol levels and increasing oxytocin levels. It also increases the activity of natural killer (NK) cells and activated T cells while reducing the production of proinflammatory cytokines and TH2-type cytokines. Therefore, massage can enhance comfort, reduce pain, and alleviate stress (20). Meanwhile, lemongrass is a plant commonly found in Indonesia, especially in Sulawesi. Lemongrass essential oil has the potential to affect cognitive function by strengthening neural connections between the prefrontal cortex and related brain areas, as well as increasing neurotransmitters such as dopamine. Therefore, lemongrass essential oil can have a positive impact, especially on alertness and self-composure (13) and has been proven effective in reducing anxiety scores (21).

The massage conducted in this study involved the back area for 25 minutes and massage of the shoulder, neck, head, and face areas for 20 minutes, totaling 45 minutes per respondent. Consistent with previous research, craniofacial massage (head and face) can improve the mental health of participants, partly improve Menopause Rating Scale scores, and halt the decline in Body Image Perception scores (12).

Previous research has proven that information about the somatosensory pleasure circuit and highlighting the importance of massages that include pleasurable touch serve as powerful means to modulate peripheral body sensations, with benefits for chronic pain and stress reduction. This study shows that massage has a significant effect on menopausal women, who suffer from many symptoms that greatly affect their quality of life (22).

The benefits of massage therapy may be due to the fact that massage stimulates pressure receptors, increases vagal activity, and reduces cortisol levels, as well as its physical, physiological, and biochemical effects. Other authors argue that massage is beneficial because it facilitates relaxation, improves sleep quality, and offers feelings of peace and well-being, especially in improving subjective sleep quality in

postmenopausal women (23), aromatherapy inhalation has a superior effect in reducing the total scores of menopausal symptoms compared to a placebo and a study has shown that aromatherapy massage with a blend of oils reduces menopausal symptoms (24).

Lemongrass essential oil enhances cognitive function in terms of attention accuracy and memory quality, as well as increasing alertness and composure in women. This effect strengthens nerve connections between the prefrontal cortex and related brain areas, as well as increasing neurotransmitters such as dopamine, norepinephrine, serotonin, and acetylcholine (13). Lemongrass essential oil improves cognitive performance for the domains of attention continuity and memory quality, improves mood in terms of alertness and calmness (13) because massage combined with lemongrass aromatherapy can lower blood pressure and calm (25); therefore, the relaxation experienced during massage using lemongrass oil can lead to a significant reduction in menopausal symptoms, and this effect can be further enhanced when massage using lemongrass oil is combined with lemongrass aromatherapy.

This study was conducted only once, and the outcome measurements remain subjective based on respondents' perceptions. Additionally, other factors may influence the results of this study, such as differences in menopausal symptoms experienced by respondents, which were initially unequal, potentially causing bias. Therefore, further research is needed to increase the frequency of massage, use more objective outcome measurements, and ensure the homogeneity of respondents' menopausal symptoms.

## CONCLUSION

This study indicates that massage using lemongrass oil, both with and without lemongrass aromatherapy, is effective in reducing menopausal symptoms, including somatic, psychological, and urogenital symptoms, for one week after the intervention. There was no significant

difference between the two groups, but clinically, the aromatherapy massage group experienced a better reduction in menopausal symptoms compared to the massage-only group. This research recommended for healthcare professionals to integrate lemongrass aromatherapy massage into menopause care programs to optimize the reduction of symptoms experienced by menopausal women. Additionally, for future research, increasing the frequency of lemongrass aromatherapy massage on respondents could be considered.

## ACKNOWLEDGEMENT

We would like to express our sincere gratitude to Direktorat Jenderal Pendidikan Vokasi Kementerian Pendidikan, Kebudayaan, Riset, Dan Teknologi for their generous funding and support for this research. The authors state there is no conflict of interest with the parties involved in this study.

## REFERENCES

1. Lobo RA. Menopause and Aging. In: Yen and Jaffe's Reproductive Endocrinology. Elsevier; 2019. p. 322-356.e9.
2. World Population Review. Life Expectancy by Country 2023 [Internet]. 2023 [cited 2023 Dec 10]. Available from: <https://worldpopulationreview.com/country-rankings/life-expectancy-by-country>
3. BPS. Angka Harapan Hidup (AHH) Menurut Provinsi dan Jenis Kelamin (Tahun), 2019-2021 [Internet]. Jakarta; 2023 [cited 2023 Dec 10]. Available from: <https://www.bps.go.id/id/statistics-table/2/NTAxIzI=/angka-harapan-hidup-laki-laki--2022.html>
4. BPS. Angka Harapan Hidup (AHH) Menurut Provinsi dan Jenis Kelamin (Tahun), 2022 [Internet]. Jakarta; 2023 [cited 2023 Dec 10]. Available from: <https://www.bps.go.id/id/statistics-table/2/NTAxIzI=/angka-harapan-hidup-laki-laki--2022.html>

5. BPS. Angka Harapan Hidup Saat Lahir (Tahun), 2020-2022 [Internet]. Jakarta; 2023 [cited 2023 Dec 10]. Available from: <https://sultra.bps.go.id/indicator/26/272/1/angka-harapan-hidup-saat-lahir.html>
6. Talaulikar V. Menopause transition: Physiology and symptoms. *Best Pract Res Clin Obstet Gynaecol*. 2022 May;81:3–7.
7. Rodriguez-Landa JF, Cueto-Escobedo J, editors. *A Multidisciplinary Look at Menopause*. InTech; 2017.
8. Flores VA, Pal L, Manson JE. Hormone Therapy in Menopause: Concepts, Controversies, and Approach to Treatment. *Endocr Rev*. 2021 Nov 16;42(6):720–52.
9. Mehta J, Kling JM, Manson JE. Risks, Benefits, and Treatment Modalities of Menopausal Hormone Therapy: Current Concepts. *Front Endocrinol (Lausanne)*. 2021 Mar 26;12.
10. Mehrnoush V, Darsareh F, Roozbeh N, Ziraeie A. Efficacy of the Complementary and Alternative Therapies for the Management of Psychological Symptoms of Menopause: A Systematic Review of Randomized Controlled Trials. *J Menopausal Med*. 2021 Dec;27(3):115–31.
11. Dehghan M, Isari Z, Abbaszadeh MH, Ghonchehpour A. Menopause symptoms in women and its relation with using complementary and alternative medicines: A survey in southeast Iran. *Front Public Health*. 2022 Aug 22;10.
12. Espí-López G V., Monzani L, Gabaldón-García E, Zurriaga R. The beneficial effects of therapeutic craniofacial massage on quality of life, mental health and menopausal symptoms and body image: A randomized controlled clinical trial. *Complement Ther Med*. 2020 Jun;51:102415.
13. Sriraksa N, Kaewwongse M, Phachonpai W, Hawiset T. Effects of Lemongrass (*Cymbopogon citratus*) Essential Oil Inhalation on Cognitive Performance and Mood in Healthy Women. *Thai Pharmaceutical and Health Science Journal*. 2018;13(2).
14. Sharma S, Mudgal S, Thakur K, Gaur R. How to calculate sample size for observational and experiential nursing research studies? *Natl J Physiol Pharm Pharmacol*. 2019;(0):1.
15. Pallant J. *SPSS Survival Manual*. Routledge; 2020.
16. Said NE, Shehata NS, Haleem SAA EI. Effect of Aromatic Massage on Somatic Problems among a Cohort of Menopausal Women. *Evidence-Based Nursing Research*. 2022;4(3):22–33.
17. Amirudin Z, Harnany AS, Widowati I. Effect of a Slow-stroke Back Massage Combination and Frangipani Essential Oils against the Comfort of Menopause Sexual Relationship. *Journal of Complementary and Alternative Medical Research*. 2020 Jul 28;37–44.
18. Allah IMA. Massage Therapy for Alleviating Menopausal Transitional Period Symptoms among Women employed at Suez Canal University Hospital. *IOSR Journal of Nursing and Health Science*. 2018 Jan;7(1):23–33.
19. Döner Şİ, Dağ Tüzmen H, Duran B, Sunar F. The effect of aromatherapy massage with lemon and peppermint essential oil on menopausal symptoms: A double-blinded, randomized placebo controlled clinical trial. *EXPLORE*. 2023 Sep;
20. Rapaport MH, Schettler PJ, Larson ER, Carroll D, Sharenko M, Nettles J, et al. *Massage Therapy for Psychiatric Disorders*. Focus (Madison). 2018 Jan;16(1):24–31.
21. Alvarado-García PAA, Soto-Vásquez MR, Rosales-Cerquin LE, Benites SM, Cubas-Romero TL, Ramírez-Roca EG. Anxiolytic-Like Effect of *Cymbopogon Citratus* (Lemongrass) Essential Oil. *Pharmacognosy Journal*. 2023 Aug 15;15(4):674–9.
22. Lloyd DM, McGlone FP, Yosipovitch G. Somatosensory pleasure circuit: from skin to brain and back. *Exp Dermatol*. 2015 May 9;24(5):321–4.
23. Hachul H, Oliveira DS, Bittencourt LRA, Andersen ML, Tufik S. The beneficial effects of massage therapy for insomnia in postmenopausal

- women. *Sleep Science*. 2014 Jun;7(2):114–6.
24. Lee HW, Ang L, Choi J, Lee MS. Aromatherapy for Managing Menopausal Symptoms: A Systematic Review and Meta-Analysis of Randomized Placebo-Controlled Trials. *The Journal of Alternative and Complementary Medicine*. 2021 Oct 1;27(10):813–23.
25. Sari E, Halawa A. Extremity Massage with Aromatherapy Lemongrass Lowers Blood Pressure Hypertension Patients. *Jurnal Ilmiah Kesehatan (JIKA)*. 2022 Dec 31;4(3):486–92.