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The effect of ginger essential oil, lemongrass essential oil and combination of ginger and lemongrass essential oils on symptoms of menopausal women

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Abstract

Menopause is a significant physiological transition in a woman's life that is frequently accompanied by a range of physical and psychological symptoms, affecting quality of life. This study aimed to evaluate the effectiveness of ginger essential oil, lemongrass essential oil, and their combination in reducing menopausal symptoms. A randomized controlled clinical trial was conducted at the Lubuk Buaya Public Health Center, involving 355 menopausal women. Participants were randomly assigned to one of three groups: ginger essential oil (n = 89), lemongrass essential oil (n = 89), and a combination of both (n = 89). Each group received 20-minute daily aromatherapy sessions for four weeks. Menopausal symptoms were measured using the Menopause Assessment Scale. The findings showed that all three aromatherapy interventions ginger, lemongrass, and their combination produced statistically significant reductions in menopausal symptoms. Aromatherapy with ginger and lemongrass essential oils is effective in alleviating menopausal symptoms. Future studies are recommended to explore the use of educational interventions, such as the Health Belief Model, to enhance symptom management. in menopausal women. *(Afr J Reprod Health 2025; 29 [9]: 113-123).*

Keywords: Ginger essential oil, lemongrass essential oil, menopause, aromatherapy.

Résumé

La ménopause est une transition physiologique importante dans la vie d'une femme, souvent accompagnée de divers symptômes physiques et psychologiques, affectant sa qualité de vie. Cette étude visait à évaluer l'efficacité de l'huile essentielle de gingembre, de l'huile essentielle de citronnelle et de leur association pour réduire les symptômes de la ménopause. Un essai clinique contrôlé randomisé a été mené au centre de santé publique de Lubuk Buaya auprès de 355 femmes ménopausées. Les participantes ont été réparties aléatoirement en trois groupes : huile essentielle de gingembre (n = 89), huile essentielle de citronnelle (n = 89) et une association des deux (n = 89). Chaque groupe a bénéficié de séances d'aromathérapie quotidiennes de 20 minutes pendant quatre semaines. Les symptômes de la ménopause ont été mesurés à l'aide de l'échelle d'évaluation de la ménopause. Les résultats ont montré que les trois interventions d'aromathérapie (gingembre, citronnelle et leur association) ont entraîné une réduction statistiquement significative des symptômes de la ménopause. L'aromathérapie aux huiles essentielles de gingembre et de citronnelle est efficace pour soulager les symptômes de la ménopause. *(Afr J Reprod Health 2025; 29 [9]: 113-123).*

Mots-clés: huile essentielle de gingembre, huile essentielle de citronnelle, ménopause, aromathérapie

Introduction

Medicinal plants are often used by the community. Strategies related to preserving biodiversity, creating new medicines, and improving the welfare of the poor rural population by restoring knowledge and practices inherent in plant resources are important.[1] Optimising multi-drug strength in bacterial microbes and other unnecessary consequences of certain antibiotics have received extensive attention in creating new minrobs that come from plants. A variety of clans are known to contain compounds that are efficacious for healing. Some of these activities include antioxidant, digestive stimulation, anti-inflammatory, antimicrobial, hypolipidaemic, antimutagenic, and anticarcinogenic.[2]

Essential oils are extracted from various plants, including trees, shrubs, flowers, spices, and fruits.

The oil is produced from various types of plants. Various essential oils are known to possess antimicrobial activities, but their mechanism of

action is not yet understood. Membrane obstacles created by lipophilic elements may participate in this process. The characteristics of ascitri oil and its elements include hydrophobicity which participates in lipids bacterial cells and moitkondria, to inhibit the structure and create many permeables. The chemical element of the ascitri oil observed by the mass of the gas gromatography mass.[3]

Essential oils (EO) are volatile aromatic substances extracted from several plant parts. Traditional methods applied to extract and separate EO consist of steam distillation and supercriticality.[4,5] Among natural herbal plants, ginger is a perennial herbaceous plant belonging to the Zingiberaceae group. This rhizome is used worldwide in recipes for culinary, drinks, and herbal medicine practices to treat various diseases, such as rheumatism, flu symptoms, fever, gastrointestinal complications, nausea when travelling, bronchitis, diabetes, and cancer.[6]

Ginger originates from tropical countries in Southeast Asia, after which it began to be planted throughout.[7] Ginger is used as a spice in cooking and drinks because of its distinctive aroma and spicy taste. Ginger contains many bioactive compounds, including excellent bioactive phenols (gingerol, shogaol, and zingerone).[8] Ginger essential oil (GEO) is an essential oil extracted from ginger roots. GEO has a unique aroma and biological activity. GEO has a large development process in the pharmaceutical and industrial sectors.[9]

Ginger essential oil (GEO) is one of the most widely used spices worldwide and has strong antibacterial, antifungal, and antioxidant activities.[10] The various pharmacological features of GEO and its antiocyted effects are very important because they prevent or slow the emergence of cancer cells, only backing up cell aging reactions by compensating for free radicals through the limits of the body.[11]

Lemongrass oil is beneficial as an antiseptic for external and internal wounds. The benefits of inhaling lemongrass aromatherapy stimulate the mind and help overcome convulsions, nervousness, dizziness, and other diseases such as Alzheimer's and Parkinson's.

Ginger has been used in traditional medicine to treat diseases and symptoms, such as colds, headaches, nausea, upset stomachs, diarrhoea, arthritis, and rheumatism, or used as a carminative, antiflatulent, and digestant[12]. Furthermore, ginger is known to have pharmacological activity against natural, chemical, and radiation-induced toxicities, such as radioprotective, hepatoprotective, nephroprotective, neuroprotective, gastroprotective, and reproductive-system-protective effects, and its mechanism of action at the molecular level has been explored.[7]

Ginger has the potential to improve cognitive abilities in postmenopausal women. Various herbs, such as cranberry, ginger, hops, milk thistle, red clover, Salvia officinalis, soybean, black cohosh, Turnera diffusa, ushuva, and Vitex, have been used for centuries to relieve menstrual and menopausal symptoms.[13]

The prevalence of menopausal symptoms varies by region, with approximately 74% of women in Europe, 36–50% in North America, and 45–69% in South America experiencing these symptoms. However, menopausal symptoms are estimated to be less common in Asia (22–63%). The onset of menopause can vary greatly between individuals, occurring between the mid-30s and mid-50s.[14] Menopausal symptoms are a common health issue in various African countries with a fairly high prevalence. Studies in Nigeria have shown that hot flushes are experienced by 39% to 80% of menopausal women, while other symptoms such as muscle or joint pain, fatigue, night sweats, and urogenital disorders are also frequently reported, with prevalence rates ranging from 35% to 66%. In Port Harcourt and Ibadan, the majority of women reported experiencing more than one menopausal symptom, while in areas such as Gulele, Ethiopia, research also confirms the high severity of symptoms, even though there are no exact numerical data available. These findings highlight the need for attention to the management of menopausal symptoms and appropriate health interventions in Africa.[15] Meanwhile, in Asia (22-63%), menopausal symptoms rarely occur. Menopause initially occurs in the mid-30s and 50s (Bapayeva *et al*.). In 2020, it was estimated that 11.54% of women in Indonesia would experience menopause at an average age of 49 years. A high number of menopausal varicose veins are accompanied by complex levels and problems that increase the health problems faced by menopausal women.[16]

Indonesia currently has 7.4% of menopausal women in the total population, and in 2020, it is estimated to reach 11.54%, with an average age of menopause of 49 years. The increase in the population of menopausal women is generally accompanied by various levels and types of complex problems, which impact the health problems experienced by menopausal women.[16]

Menopausal women are also at risk of osteoporosis and cardiovascular diseases.[17] During this period, desire, sexual arousal, and the amount of sexual activity decrease significantly.[18] Dysfunctional sexual habits in women aged 40–80 years worldwide is 43%. Management of these symptoms certainly involves treating the distressing symptoms of menopause, a way to deal with psychosocial stress, and eliminating symptoms of clinical anxiety and depression (Salehi-Pourmehr *et al)*. 2020). Hormone exchange therapy is an intervention that can reduce symptoms and is recommended as a multifaceted approach. However, concerns about the development of certain malignant diseases still exist, and their use is limited. Therefore, alternative methods are needed to reduce menopausal symptoms.[19]

Aromatherapy is a complementary and alternative therapy that has been used for many years to improve women's health. Aromatherapy with volatile compounds obtained from plants, generally through inhalation, can be used to anticipate infectious diseases and health problems.[20] Feelings of magic, nausea, and anxiety can be eliminated by slowly practising aromatherapy. Modern healthcare is often used by patients and doctors through atomatherapy.[21]

Based on the above phenomenon, people are trying to use ginger and lemongrass as aromatherapy for women with menopausal symptoms. The results of relevant research regarding essential oil content, properties and benefits of essential oil and ginger extract provide a strong basis for conducting this research because according to this research, I have not found any research regarding ginger essential oil and lemongrass essential oil, especially the novelty of combining the oils. This study aimed to analyse the effects of ginger essential oil, lemongrass essential oil, and a combination of ginger and lemongrass essential oils on the symptoms of menopausal women**"**. The novelty of this study resides in its comparative assessment of ginger essential oil, lemongrass essential oil, and their combination as non-hormonal interventions for mitigating menopausal symptomsan approach infrequently examined in the extant literature, particularly within the context of developing nations. Although aromatherapy has been investigated in general populations, there is a paucity of scientific evidence from resource-constrained settings, notably in African countries, where access to conventional hormone therapy is often restricted due to cost, availability, or cultural beliefs. This study presents a locally pertinent and culturally adaptable intervention that addresses both the physical and psychological symptoms of menopause using natural ingredients that are affordable, easily accessible, and culturally acceptable to many African women. Furthermore, this research provides new data through a randomized controlled trial, enhancing methodological rigor and strengthening the evidence base for complementary and integrative therapies in women's reproductive health. Thus, this article fills a significant gap in the literature and offers practical strategies that can be widely implemented into primary healthcare systems across various regions of Africa to improve the quality of life for menopausal women

Methods

Study design and setting

This study used an experimental clinical trial design (involving selected samples and collected data, analysed data, and participants). The target population in this study was all women experiencing menopausal symptoms referred to health care centres in Lubuk Buaya, Indonesia. The study will be conducted from 1 September to 1 November 2024.

Participants

Inclusion criteria

Menopausal women with joint pain, Menopausal women age group of 46-65 years, Menopausal women who were willing to participate in the study

and Menopausal women who were able to follow instruction

Exclusion criteria

Menopausal women who were taking regular analgesics, Menopausal women who are allergic to lemongrass and ginger oil, Menopausal women who were practising hot and cold application, Menopausal women who were on any other alternative system of medicine, Menopausal women who were not available at the time of data collection, Menopausal women who were have arthritis and Menopausal women who were have Gynecological illness causes temporary cessation of menstruation

Sample size estimation

Therefore, a sample of 355 respondents was obtained. This research was designed as a quasi-experimental pre-post type with a control group. The population is menopausal women in lubuk buaya community health center Indonesia. The sample was taken from those who met the following inclusion criteria: Willingness to participate as research respondents voluntarily. The sampling technique used in this research was Proportional Random Sampling. Sampling with Proportional Random Sampling is the randomisation of groups, not individual subjects.

Based on Table 1 the following treatment groups can be created from the calculation of the number of samples above.

Intervention

The intervention group consisted of 355 participants for 4 Weeks. Lemongrass essential oil, ginger essential oil, and a combination of ginger and lemongrass essential oil were sent to the respondents according to their addresses. The essential oil intervention was conducted for 4 Weeks.

The participants were instructed to perform aromatherapy with essential oils, and if they experienced menopausal symptoms or a decrease in menopausal symptoms, they were instructed to contact the researcher. The essential oils were stored in a cool place, away from direct sunlight and humidity. A daily aromatherapy checklist was provided to the participants to mark the use of aromatherapy at home. The researcher called every day to ensure the use of aromatherapy.

Measurement

The Menopause Rating Scale (MRS) questionnaire was used to assess menopausal symptoms. This self-administered instrument has been widely used and validated and has been used in many clinical and epidemiological studies and in research on the aetiology of menopausal symptoms to assess the severity of menopausal symptoms. The Menopause Rating Scale (MRS) instrument was adopted from (Beck, Brewis, and Davies 2020). The justification for employing the Menopause Rating Scale (MRS) Questionnaire in this study lies in its established reliability and validity for evaluating the severity of menopausal symptoms across various domains, including somatic, psychological, and urogenital symptoms. This standardized instrument is extensively utilized in both clinical and research contexts to monitor treatment outcomes in menopausal women. The selection of the MRS is particularly apt as it facilitates both subjective patient assessment and objective group comparisons, thereby rendering it especially suitable for assessing the efficacy of non-hormonal interventions such as aromatherapy. Its application in this study ensures comparability with existing literature and enhances the credibility of the symptom assessment

Instruments are measuring tools used to obtain quantitative information about variations in the characteristics of variables. The instrument used was the Numerical Rating Scale.

The instrument used for the research was a questionnaire containing statements using the Likert scale model. In collecting data to discuss the problems in this study, the data sources are as follows: (1) Primary data, namely data collected directly on research objects through questionnaires, and filled in by research samples by preparing a list of questions related to research variables taken directly on women with menopause symptoms. (2) 2. Secondary data, namely data regarding the number of women with menopause symptoms at the Lubuk Buaya Public Health Center Indonesia.

Table 1: Distribution of samples into treatment groups

Research Area		GEO	LEO	Com	Cont
Lubuk Buaya	107 :4	26	26	26	26
Tabing	109 :4	28	28	28	28
Pasir Nan Tigo	75 :4	19	19	19	19
Batang Gabung	64 :4	16	16	16	16
Total		89	89	89	89

The MRS has been formally standardised in accordance with psychometric norms. It includes 11 symptoms for evaluation. Respondents can choose from five categories: asymptomatic, mild, moderate, marked, and severe (scores 1–5) (Schneider 2022). The research data were obtained using the MRS instrument. Data analysis was applied to obtain the significance of the independent and dependent variables. The normality and Wilcoxon tests were used to assist the analysis.

Statistical analysis

The research findings are presented as averages and standard deviations. Statistical analyses were performed using SPSS version 26.0. Homogeneity test for data analysis using the ANOVA test.

Ethical consideration

The results of this research were given to the University Ethics and Ethics Committee for behavioral problems. An official letter of support granting access to the research area was taken from Padang, West Sumatra, the search area before the search began, ethical number: 765/ KEPK/VI/2024

Results

The aromatherapy effects of ginger essential oil on women with menopausal symptoms at Lubuk Buaya Public Health Center

Univariate analysis included menopausal symptom scores before ginger essential oil aromatherapy and menopausal symptom scores after aromatherapy using lemongrass essential oil. The following is the average data on menopausal symptom scores for post-test respondents based on the analysis test, as shown in Table 2.

Table 2: Average menopause symptoms for ginger essential oil aromatherapy treatment and control

	N	Mean	Std. Deviation	Std Error
GEO	89	2.8947	.26856	.02831
Control	89	3.0411	.24621	.02595
Total	178	2.9679	.26719	.01992

Table 3: Homogeneity test of the intervention group and the control group (n = 90)

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Value	Based on Mean	.376	1	178	.541
	Based on Median	.447	1	178	.505
	Based on Median and with adjusted df	.447	1	176.955	.505
	Based on trimmed mean	.383	1	178	.537

Based on Table 2, respondents who experienced menopausal symptoms and were given Ginger Essential Oil (GEO) treatment obtained an average of 2.8947, while the average of respondents who experienced menopausal symptoms who were given control treatment was 3.0411.

Bivariate analysis was performed to determine the effects of ginger essential oil aromatherapy on women with menopausal symptoms at the Lubuk Buaya Health Center. An ANOVA assumption test was first conducted, namely, the variance was the same for all groups. The results of the homogeneity test are presented in Table 3.

Based on the results of the homogeneity test, a p-value of 0.541 was obtained, which was greater than 0.05. This indicates that the data group was homogeneous. The results of the classical assumption test analysis were met; therefore, the hypothesis test used the ANOVA test. The results of the Anova test can be seen in Table 4.

In the table, the F value is 14,540, and the asymptotic. Sig.(2-tailed) value was 0.000. The Asymp.Sig.(2-tailed) value is smaller than the significance level of alpha = 0.05 (0.000 <0.05).

Table 4: Anova test for intervention group (n = 78)

ANOVA					
Value					
	Sum of Square	Df	Mean Square	F	Sig.
Between Groups	.965	1	.965	14.540	.000
Within Groups	11.814	178	.066		
Total	12.779	179			

Table 5: Average menopause symptoms for lemongrass essential oil aromatherapy treatment and control

	N	Mean	Std. Deviation	Std. Error
LEO	89	2.6129	.23949	.02524
Control	89	3.0411	.24621	.02595
Total	178	2.8270	.32366	.02412

Table 6: Homogeneity test of the intervention group and the control group (n = 89)

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Nilai	Based on Mean	.002	1	178	.967
	Based on Median	.000	1	178	.985
	Based on Median and with adjusted df	.000	1	177.951	.985
	Based on trimmed mean	.001	1	178	.973

This indicates a significant difference between the control treatment and GEO in the intervention group. Therefore, it can be concluded that ginger essential oil aromatherapy has a significant effect on menopausal symptoms in women at the Lubuk Buaya Health Center, Indonesia. Aromatherapy can reduce menopausal symptoms in women at the Lubuk Buaya Health Center, Indonesia.

Table 7: Anova test intervention group (n = 89)

ANOVA					
Value					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.252	1	8.252	139.895	.000
Within Groups	10.500	178	.059		
Total	18.751	179			

The aromatherapy effects of lemongrass essential oil on women with menopausal symptoms at Lubuk Buaya Public Health Center

The results of the univariate test of menopausal symptom scores after being given lemongrass aromatherapy for menopausal symptoms obtained as follows in the Table 5. Table 5 shows that the respondents who experienced menopausal symptoms and were given LEO treatment obtained an average of 2.6129, while the average of respondents who experienced menopausal symptoms and were given control treatment was 3.0411.

To test the effect of lemongrass essential oil aromatherapy on women with menopausal symptoms at the Lubuk Buaya Health Center, Indonesia a homogeneity test was conducted. The results of the homogeneity test are presented in the following.Table 6 shows a significance value of 0.967 which is greater than 0.05, meaning that the data group is homogeneous. Based on the results of the homogeneity of variance test, the Anova test was used to test the effect of lemongrass aromatherapy on the symptoms of menopausal women. The results of the ANOVA test are presented in Table 7.

In the table 7, the F value is 139.895 and the asymptotic. Sig.(2-tailed) value was 0.000. The Asymp.Sig.(2-tailed) value is smaller than the significance level of alpha = 0.05 (0.000 <0.05). This indicates a significant difference between the control treatment and LEO in the intervention group.

Table 8: Average score of menopause symptoms of combination of ginger essential oil and lemongrass essential oil aromatherapy

	N	Mean	Std. Deviation	Std. Error
Combination of both ginger essential oil and lemongrass essential oil	89	2.7481	.31873	.03360
Control	89	3.0411	.24621	.02595
Total	178	2.8946	.31974	.02383

Table 9: Homogeneity test of the intervention group and the control group (n = 89)

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Value	Based on Mean	1.850	1	178	.175
	Based on Median	1.697	1	178	.194
	Based on Median and with adjusted df	1.697	1	160.833	.195
	Based on trimmed mean	1.683	1	178	.196

Table 10: Anova test for the intervention group (n = 89)

ANOVA					
Value					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.863	1	3.863	47.634	.000
Within Groups	14.436	178	.081		
Total	18.299	179			

Therefore, it can be concluded that aromatherapy with lemongrass essential oil has a significant effect on menopausal symptoms in women at the Lubuk Buaya Health Center. Lemongrass essential oil aromatherapy can reduce menopausal symptoms in women at the Lubuk Buaya Health Center.

The aromatherapy effects of a combination of both ginger essential oil and lemongrass essential oil on women with menopausal symptoms at Lubuk Buaya Public Health Center

Univariate testing was conducted to determine menopausal symptoms before applying the aromatherapy mixture of ginger and lemongrass essential oils and after treatment in women with menopausal symptoms in Lubuk Buaya. The results of the univariate test are presented in Table 8.

Based on Table 8, respondents who experienced menopausal symptoms and were given Ginger Essential Oil (GEO) and Lemongrass Essential Oil (LEO) treatments obtained an average of 2.7481, while the average of respondents who experienced menopausal symptoms and were given control treatment was 3.0411. Before conducting a hypothesis test, a bivariate test was first conducted using a homogeneity test. The results of the homogeneity test are presented below. Table 9

The results of the homogeneity of variance test obtained a significance value of 0.175, which was greater than the alpha of 0.05; therefore, the data were homogeneous. Based on the results of the homogeneity test, a hypothesis test was conducted using the ANOVA test. The results of the ANOVA test are presented in Table 10.

In the table the F value is 14,540 and the Asymp.Sig.(2-tailed) value is 0.000. The Asymp.Sig.(2-tailed) value is smaller than the significance level of alpha = 0.05 (0.000 <0.05). This indicates a significant difference between the GEO and LEO mixtures and the control group. Therefore, it can be concluded that Combination essential oil aromatherapy has an effect on menopausal symptoms in women at the Lubuk Buaya Health Center, Indonesia. Giving aromatherapy can reduce menopausal symptoms in women at the Lubuk Buaya Health Center, Indonesia.

Discussion

The aromatherapy effects of ginger essential oil on women with menopausal symptoms at Lubuk Buaya Public Health Center, Indonesia.

Based on the results of this study, it was found that ginger essential oil aromatherapy significantly affected the symptoms of menopausal women at the Lubuk Buaya Public Health Center, Indonesia. This suggests that ginger essential oil aromatherapy can reduce menopausal symptoms.

Aromatherapy, also known as essential oil therapy, is thought to reduce anxiety and increase relaxation, which may be beneficial in alleviating stressful menopausal symptoms.[22] Aromatherapy utilises oils extracted from herbal plants and has beneficial effects on mental, psychological, and emotional situations through the production of endorphins. Aromatherapy can reduce anxiety, lower basic pressure, and regulate physiological parameters, including temperature and pulse[19]. Aromatherapy could be effective in reducing menopausal symptoms.[23]

Aromatherapy massage using essential oils such as lavender, eucalyptus, ginger, and rosemary has been reported to be used in the treatment of knee OA.[24] Osteoarthritis (OA) is a degenerative cartilage disease characterised by progressive swelling and loss of function.[25] In women, the incidence, severity, and prevalence of osteoarthritis peak during menopause.[26]

Ginger has been used in traditional medicines to treat diseases and symptoms, such as colds, headache, nausea, upset stomach, diarrhea, arthritis and rheumatism, or used as a carminative, antiflatulent and digestant.[12]

Investigated the effects of ginger supplementation in postmenopausal women and found that it significantly reduced the frequency and intensity of hot flashes. Furthermore, ginger improves overall well-being by reducing fatigue and promoting better sleep. Lee *et al*. highlighted the role of lemongrass in alleviating menopausal symptoms such as hot flashes, fatigue, and anxiety. The study concluded that lemongrass, when used regularly, could help reduce the frequency and intensity of hot flashes and improve sleep quality, thus enhancing the overall quality of life of menopausal women.

The aromatherapy effects of lemongrass essential oil on women with menopausal symptoms at Lubuk Buaya Public Health Center, Indonesia.

The results of the study found that the impact of giving lemongrass essential oil aromatherapy had a significant effect on the symptoms of menopausal women. Essential oil aromatherapy can reduce menopausal symptoms.

Aromatherapy has been shown to reduce dysmenorrhoea, mild depression-induced anxiety, and blood pressure (S. Han *et al*.). It also adjusts other physiological parameters, including heart rate and body temperature (Salehi-Pourmehr *et al.*).

Lemongrass essential oil improves cognitive function in terms of attention accuracy and memory quality and increases alertness and calmness in women. These effects strengthen neural connections between the prefrontal cortex and related brain areas and increase neurotransmitters such as dopamine, norepinephrine, serotonin, and acetylcholine. Lemongrass essential oil improves cognitive performance in the domains of attention continuity and memory quality and improves mood in terms of alertness and calmness.[27] Because massage combined with lemongrass aromatherapy can lower blood pressure and induce calmness. Therefore, the relaxation experienced during massage using lemongrass oil can lead to a significant reduction in menopausal symptoms, and these effects can be further enhanced when massage using lemongrass oil is combined with lemongrass aromatherapy.

The aroma of lemongrass oil has been shown to have a positive impact on mood by stimulating the production of neurotransmitters, such as serotonin, which play a role in regulating mood and reducing anxiety. Inhaling lemongrass essential oil significantly reduced feelings of anxiety and stress in menopausal women.[28]

The aromatherapy effects of a combination of both ginger essential oil and lemongrass essential oil on women with menopausal symptoms at Lubuk Buaya Public Health Center

Based on the results of this study, it was found that the administration of aromatherapy with a mixture of ginger and lemongrass essential oils had a significant effect on the symptoms of menopausal women at the Lubuk Buaya Public Health Center, Indonesia. Menopausal symptoms decreased after aromatherapy with lemongrass and ginger essential oils.

Aromatherapy is increasingly used to treat cancer and sleep disorders. Other organic compounds, such as alcohols, aldehydes, ketones, oxides, esters, and phenols (in addition to terpenes), found in essential oils contribute to the sense of well-being.[29]

Roshani *et al*. (2021) found that a combination of ginger and lemongrass significantly reduced the frequency and severity of hot flashes in postmenopausal women. The researchers noted that the participants who consumed a daily tea made from these herbs reported improvements in mood, sleep, and energy levels, leading to enhanced overall quality of life.[30]

Essential oils from ginger and lemongrass can be used in aromatherapy to promote relaxation and reduce stress. Diffusing the oils or adding a few drops to a warm bath can provide soothing effects that may help alleviate anxiety and improve sleep quality.[3]

Strengths and limitations

In this study, a specialized questionnaire system Menopause Rating Scale (MRS) was used to evaluate the impact of daily menopausal symptoms, thus improving the targeting of the assessment. However, the following limitations should be noted: single-center convenience sampling and cross-sectional design limit the extrapolation of the results: the level of menopausal symptoms relied on self-reporting, which may have recall bias; the model was built based on the Lubuk Buaya Community Health Center population, and further validation is needed to determine its applicability to the population. Future studies should adopt a multicenter prospective design and consider dynamic monitoring of objective indicators to improve the generalizability of the model.

Conclusion

Based on the results of the research data analysis, the results of this study can be concluded as follows: ginger essential oil, ginger essential oil, and a combination of ginger and lemongrass essential oil aromatherapy significantly affected the symptoms of menopausal women at the Lubuk Buaya Public Health Center, Indonesia. This means that using ginger essential oil, lemongrass essential oil, and a combination of ginger and lemongrass essential oils in aromatherapy can reduce menopausal symptoms.

Suggestions

We recommend integrating health behavior models, such as the *Health Belief Model* or the *Theory of Planned Behavior,* to guide educational interventions that support symptom management. In women's reproductive health practice, we suggest that non-hormonal therapies such as aromatherapy be integrated into primary healthcare services as culturally acceptable and easily accessible options, especially in resource-limited areas. These recommendations aim to promote a holistic approach to care for and improve the quality of life of menopausal women.

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