

Effect of aromatherapy massage on menopausal symptoms: a randomized placebo-controlled clinical trial

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Abstract

Objective: Menopause is a significant event in most women's lives because it marks the end of a woman's natural reproductive life. The purpose of this study was to determine the effect of aromatherapy massage on menopausal symptoms.

Methods: A randomized placebo-controlled clinical trial was conducted at a menopausal clinic at a gynecology hospital in Tehran. The study population comprised 90 women who were assigned to an aromatherapy massage group, a placebo massage group, or a control group. Each participant in the aromatherapy massage group received 30-minute aromatherapy treatment sessions twice a week for 4 weeks with aroma oil, whereas participants in the placebo massage group received the same treatment with plain oil. No treatment was provided to participants in the control group. The outcome measures in this study were menopausal symptoms, as obtained through the Menopause Rating Scale.

Results: The mean baseline level of the menopausal score did not differ among all groups. However, after eight sessions of intervention, the Menopause Rating Scale score differed significantly among the three groups ($P < 0.001$). Post hoc analysis revealed that women in both the aromatherapy massage group and the placebo massage group had a lower menopausal score than the control group ($P < 0.001$). When the aromatherapy massage and the placebo massage groups were compared, the menopausal score for the aromatherapy massage group was found to be significantly lower ($P < 0.001$) than for the placebo group.

Conclusions: The results of the study demonstrate that both massage and aromatherapy massage were effective in reducing menopausal symptoms. However, aromatherapy massage was more effective than only massage.

Key Words: Aromatherapy massage – Menopausal symptoms – Menopausal rating scale.

Menopause is a significant event in most women's lives because it marks the end of a woman's natural reproductive life and is associated with symptoms attributed to decreasing estrogen levels.¹ Through the menopausal period, women will go through many changes, both physically and emotionally. Menopause may be associated with vasomotor symptoms, psychological symptoms, urogenital atrophy, urinary tract infections and incontinence, sexual dysfunction, and decreased libido, all of which may have a

significant negative impact on the overall quality of life for a substantial number of women.² Although menopausal symptom rates change from woman to woman, it is estimated that 80% to 85% of them experience some symptoms during this period.^{3,4} Although much evidence supports the advantages of hormone therapy,⁵⁻⁸ concerns about its safety have led to increased interest in and use of alternative therapies.^{9,10} A wide range of complementary therapies can be used to relieve short-term menopausal symptoms, including aromatherapy.^{11,12}

Aromatherapy is the therapeutic use of essential oils from plants and is perceived to be a safe therapy.¹³ There are many types of essential oils used for aromatherapy in menopause, such as geranium, rose, clary sage, fennel, cypress, angelica, and lavender. It has been proposed that geranium oil balances hormones and that rose oil strengthens uterus function.^{14,15} It has been asserted that lavender oil, which is widely used, has relaxation and sedative effects. Several aromatic oils have been recommended as phytoestrogens because they include components related to the sex hormones.¹⁶ Essential oils can be administered through inhalation, oral intake, or topical applications including bathing, using compresses, and massaging.¹³ Aromatherapy massage is the most widely used complementary therapy.¹⁷ In the literature, there are studies that have examined the effect of aromatherapy massage on different patient groups.¹⁸⁻²¹ There are also some studies in

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This trial has been registered in the Iranian Registry of Clinical Trials, which is a Primary Registry in the World Health Organization Registry Network set up with help from the Ministry of Health and Medical Education and hosted by the Tehran University of Medical Sciences (IRCT ID: IRCT201101262172N9).

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the literature regarding the use of aromatherapy in women's health.^{21,22} However, to our knowledge, there are few studies related to menopause. Despite the results of some studies^{23,24} that show the potential usefulness of aromatherapy in treating menopause, scientific research on the subject is limited. We have been unable to find any previously published studies of the effect of aromatherapy on menopausal symptoms in Iran. It was decided upon to undertake an investigation to determine whether aromatherapy massage improves the menopausal symptoms of Iranian postmenopausal women.

METHODS

Design

A randomized placebo-controlled clinical trial was conducted to determine the effect of aromatherapy massage on the menopausal symptoms of postmenopausal women who visited a menopausal clinic at one of the main gynecology hospitals in the center of Tehran between June and September 2011. The inclusion of the placebo massage group was thought to be important in this trial to distinguish the specific effects of aroma separately from the effects of massage. Sample size was calculated based on 80% power and 5% type 1 error, and it was determined that 30 participants were needed for each group. The experimental protocol was approved by the ethics and research committee of the Tehran University of Medical Sciences.

Participants

The study population comprised 90 women who had naturally entered the menopausal period and who had menopausal symptoms according to the Menopause Rating Scale (MRS). Eligible postmenopausal women satisfied the following inclusion criteria: age between 45 and 60 years, amenorrhea for at least 12 months, no serious chronic medical conditions, normal Papanicolaou test results in the past 12 months, and no abnormal clinical findings. They also had to be married and had to agree to the use of aromatherapy. In addition, they were required to be free of allergies related to aromatherapy, which was verified with skin tests performed during the recruitment stage. Trial exclusion criteria included the following: adverse effects exposed during the allergy tests, any kind of crisis involving participants or their family, absence from more than two intervention sessions, and use of any kind of medical treatments (such as hormone therapy) during the study. The participants were assigned to an aromatherapy massage group ($n = 30$), a placebo massage group ($n = 30$), or a control group ($n = 30$) after filling in the informed consent form. Random allocation to one of the three groups was performed in a ratio of 1:1:1 within balanced blocks of three. For each three women, one was allocated to the aromatherapy massage group, one to the placebo massage group, and one to the control group; the sequence varied randomly.

Menopausal symptoms

The outcome measures in this study were menopausal symptoms, as obtained through the MRS. The scale is de-

signed and standardized to assess the occurrence and severity of the symptoms/complaints of postmenopausal women. The MRS is composed of 11 items assessing menopausal symptoms, including depressive mood, irritability, anxiety, hot flushes, heart discomfort, sleeping problems, muscle and joint problems, sexual problems, bladder problems, and dryness of the vagina. Each of the 11 symptoms contained in the scale could get scores of 0 (no complaints) to 4 (severe symptoms) depending on the severity of the complaints. For a particular individual, the total MRS score is the sum of the scores obtained for each symptom.²⁵ Heinemann et al²⁵ have published translations of the MRS in various languages. The English version of the MRS was used in this study as a starting point. The questionnaire was first translated into the Persian language by a group of experienced health workers and language experts and then translated back to English to validate whether the original meaning of the questionnaire was maintained in the translation. The face and content validity was checked by a research committee of the Nursing and Midwifery Faculty of the Tehran University of Medical Sciences; a pilot study was done on 50 women to validate the translated MRS questionnaires. The women were asked whether they had experienced the 11 menopausal symptoms shown in the MRS in the previous month (30 d). Reliability analysis was performed on the translated MRS questionnaires, with a Cronbach α of 0.82. It should be mentioned that all the participants in the pilot study were demographically similar to the participants in the study.

The sociodemographic data, which included age, age at menopause, age at menarche, number of pregnancies, parity, number of children, and body mass index, were assessed by questionnaire, which was completed for each participant before the beginning of the interventions. Because some of our participants were uneducated, a face-to-face interview was done rather than using self-administered responses.

Intervention

Each participant in the aromatherapy massage group received 30-minute aromatherapy treatment sessions twice a week for 4 weeks (eight sessions in total) with aroma oil: "lavender, rose geranium, rose, and rosemary in a 4:2:1:1 ratio, diluted almond (90%) and evening primrose oil (10%) at a final concentration of 3%." Essential oils used in this study were made at an Iranian pharmacy factory.

Participants in the placebo massage group also received 30-minute massage treatment sessions twice a week for 4 weeks (eight sessions in total with odorless liquid petrolatum or "soft paraffin"), whereas no treatment was provided to participants in the control group; they continued their usual daily routines.

The procedure was performed by a certified, clinically experienced midwife, who had completed a training course in aromatherapy and massage. Massage therapy was provided to the participants of each group at a fixed time of the day by the same massager in a special quiet room where the temperature was 24°C to 26°C. Massage therapy was applied while the

participants were lying in a supine position. A cushion was placed under a participant's knees to keep the abdomen relaxed. Massage was applied on the abdomen, femur, and arm. The masseuse washed and dried her hands and rubbed them to warm up before applying the massage. Then, depending on the type of intervention, the masseuse poured 5 mL of aroma oil or liquid petrolatum into her hands and applied the massage with clockwise circular movements with light pressure. The left hand was placed on the right hand, and both hands were placed on the lower right abdomen. The movement went to the ribs and then across the abdomen to the lower left abdomen. The massage on the femur and arms was done in the same way. After the massage, the participant's abdomen, femur, and arm were cleaned with a clean and dry paper towel. The severity of menopausal symptoms was noted on the MRS by the end of eight sessions. To avoid bias in the study, the MRS evaluation was conducted by a second researcher who did not know the study groups. On completion of the study, two MRS scores had been obtained for every participant (once before intervention and another one after 4 wk of intervention).

Statistical analysis

The results were analyzed using SPSS version 14 software. All outcomes were compared using analysis of variance or K independent-samples test and independent-sample *t* test for between-group comparisons and the paired-sample *t* test for comparisons between preapplication and postapplication. A *P* value of <0.05 was considered statistically significant.

RESULTS

Of 450 women who visited the menopausal clinic during the study period, 377 (83.7%) had menopausal symptoms according to the MRS. After excluding 126 ineligible women, 251 women fulfilled the inclusion criteria and were invited to participate in the study. Of these, 90 consented and were randomized. Three of the participants who failed to attend more than two therapy sessions dropped out during the study period. A total of 87 women—aromatherapy massage group, *n* = 28; placebo massage group, *n* = 29; and control group, *n* = 30—completed the study.

TABLE 1. Homogeneity test for demographic characteristics (*N* = 87)

Characteristics	Aromatherapy massage	Placebo massage	Control	<i>P</i>
Age, y	53.35 ± 4.34	52 ± 4.88	53.70 ± 4.28	0.319
Age at menopause, y	50.35 ± 2.31	49.95 ± 3.31	50.30 ± 3.04	0.648
Age at menarche, y	12.07 ± 2.70	11.44 ± 2.38	11.80 ± 2.48	0.512
Number of pregnancies	4.86 ± 2.08	3.83 ± 2.36	4.27 ± 2.16	0.210 ^a
Parity	4.57 ± 1.91	3.59 ± 2.19	4.17 ± 2.16	0.217 ^a
Number of children	4.50 ± 1.86	3.34 ± 2.15	4.07 ± 2.18	0.110 ^a
Body mass index, kg/m ²	26.21 ± 3.26	26.64 ± 3.50	26.40 ± 3.67	0.898

Based on one-way analysis of variance test. Data are presented as mean ± SD.

^aBased on K independent-samples test (Kruskal-Wallis).

TABLE 2. Comparison of impact of aromatherapy and placebo massage on menopausal symptoms (Menopause Rating Scale score)

Group	Before	After	<i>t</i>	<i>df</i>	<i>P</i>
Aromatherapy massage	21.86 ± 2.86	13.11 ± 2.91	17.58	27	<0.001
Placebo massage	21.72 ± 3.09	19.07 ± 2.84	10.64	28	<0.001
Control	22.13 ± 3.36	22.13 ± 3.68	0.000	29	1

Based on paired-samples *t* test. Data are presented as mean ± SD.

The groups did not differ significantly in age, age at menopause, age at menarche, number of pregnancies, parity, number of children, and body mass index (Table 1).

In the study, menopausal symptoms decreased from 21.86 ± 2.86 to 13.11 ± 2.91 after aromatherapy massage and from 21.72 ± 3.09 to 19.07 ± 2.84 after placebo massage. A statistically significant difference was found between the participants' preapplication and postapplication MRS scores in aromatherapy and placebo massage (*P* < 0.001), whereas the score in the control group did not differ significantly (Table 2).

The mean baseline level of the menopausal score did not differ among all groups. However, after eight sessions of intervention, MRS scores differed significantly among the three groups as shown in Table 3 (*P* < 0.001). Post hoc analysis revealed that women in both the aromatherapy massage group and the placebo massage group had a lower menopausal score than did women in the control group (*P* < 0.001). When the aromatherapy massage and the placebo massage groups were compared, the participants' menopausal score after intervention of the aromatherapy massage group was found to be significantly lower (*P* < 0.001) than that of the placebo group (Table 4).

DISCUSSION

Women who go through menopause may need to get help from healthcare professionals because the symptoms of this period may have negative effects on their lives. In the present study, the effect of aromatherapy massage was examined in postmenopausal women. The participants reported a serious level of menopausal symptoms before the intervention, but participants who received an aromatherapy massage twice a week for 4 weeks showed a greater reduction in menopausal symptoms than did those in the control group. These findings are similar to those of an earlier study that examined the effect of aromatherapy massage on women experiencing menopausal symptoms.²³ Another uncontrolled trial, which examined the impact of aromatherapy massage on menopausal

TABLE 3. Comparison of the mean menopausal score among all groups

Phase	Aromatherapy massage	Placebo massage	Control	<i>P</i>
Baseline	21.86 ± 2.86	21.72 ± 3.09	22.13 ± 3.36	0.819
After intervention	13.11 ± 2.91	19.07 ± 2.84	22.13 ± 3.68	<0.001

Based on one-way analysis of variance test. Data are presented as mean ± SD.

TABLE 4. Comparison of the mean menopausal score after intervention between groups

Menopausal score	Group								
	Aromatherapy massage	Control	P	Placebo massage	Control	P	Aromatherapy massage	Placebo massage	P
After intervention	13.11 ± 2.91	22.13 ± 3.68	<0.001	19.07 ± 2.84	22.13 ± 3.68	<0.001	13.11 ± 2.91	19.07 ± 2.84	<0.001

Based on independent-sample *t* test. Data are presented as mean ± SD.

symptoms, showed improvement of menopausal symptoms through aromatherapy massage.²⁴

As the results of our study showed, massage therapy also has positive effects because of the lower score averages reported by the placebo massage group after the intervention. The effectiveness of different types of massage therapies for similar symptoms was discussed in previous studies.²⁶⁻²⁸ The mechanism of the effect of massage on reduction of menopausal symptoms—according to the results of one study—may be caused by hormonal changes after massage therapy. That study found that mechanical massage of the abdominal muscles of women was associated with hormonal changes; however, the study did not test postmenopausal women.²⁹

In the present study, it was clear that the aromatherapy massage group's average menopausal symptom scores are lower than the placebo massage group's average menopausal symptom scores. Thus, the use of aromatherapy massage was more effective than massage without aromatherapy. This is consistent with the result of a study that investigated the effect of aromatherapy massage on dysmenorrhea.³⁰ On the other hand, some of the studies reported that there were no significant differences between massage with and without aroma.^{31,32} These results suggest the need for further investigation.

It should be mentioned that the present study is limited by its small sample size, and results cannot be generalized to a wider population. Our results also could have been influenced by the emotional support received through the aromatherapy or placebo massage (by being touched gently and warmly), whereas this benefit was not provided for the control group. Finally, the study assessed only short-term effects; long-term effects were not tested in this study, so these limitations should be considered in further studies.

CONCLUSIONS

The results of this study demonstrate that both massage and aromatherapy massage are effective in reducing menopausal symptoms. However, aromatherapy massage is more effective than massage without aromatherapy. In general, evidence of the effectiveness of aromatherapy in providing relief to women experiencing menopausal symptoms is limited. In particular, there is a lack of studies with an adequate number of participants and study duration. There is some encouraging evidence that aromatherapy massage may help relieve menopausal symptoms, although no recommendations can be made from the evidence currently available. Further large, good-quality trials are required to enhance the evidence and enable women to make informed decisions on their use of aromatherapy. How-

ever, the results are interesting, and it is hoped that they will inspire researchers to design randomized controlled trial studies in this field.

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