Effect of Aromatic Massage on Somatic Problems among a Cohort of Menopausal Women

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ABSTRACT

Context: Menopause is a significant event in women's lives. It marks the end of a woman's natural reproductive life; it is usually accompanied by symptoms that affect the women's ability to perform their normal daily activities. Massage is one of the non-pharmacological methods that can help women cope with menopausal symptoms.

Aim: The study aimed to evaluate the effect of aromatic massage on somatic problems among a cohort of menopausal women.

Methods: A comparative quasi-experimental time serial (pre-posttest, study/control) design was used. The study was conducted at outpatient clinics of Ain shams University Maternity Hospital. A purposive sample of 74 menopausal women with menopausal symptoms was recruited in this study and divided randomly into an intervention group (Aromatic massage) and a control group (Massage only). Data were collected through three tools. A structured interviewing questionnaire is divided into three parts: general data, obstetrics, and menstrual history, the Kupperman index (menopausal assessment symptoms tool) to assess somatic menopausal symptoms, and the Visual Analogue Scale to assess the history of menstrual pain degree among menopausal women.

Results: It revealed two matched groups of women with a mean age of 47.83±5.23 vs. 49.05±3.98 in the aromatic and massage-only groups, respectively. The pre/post-intervention results revealed a significant improvement in most somatic menopausal symptoms, decreasing the frequency of hot flushes attacks, paresthesia, vertigo, fatigue, myalgia, headache, heart palpitation, and formication in the aromatherapy massage group post-intervention and in the follow up ($p<0.05$). The comparison between the aromatic and massage-only groups revealed a significant difference between the two groups with a significantly lower mean score in total menopausal somatic symptoms.

***Conclusion*:** Aromatic massage with lavender, clary sage, jasmine, and rose dissolved in almond oil was effective in easing somatic menopausal symptoms compared to their pre-intervention level and compared to the massage-only group. The study recommended developing counseling programs for women about aromatic massage therapy at gynecological clinics.

Keywords: Somatic problems, aromatic massage, menopause, women

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1. Introduction

Menopause marks the end of menstrual cycles. It is diagnosed after 12 months without a menstrual period and always happens in the 40s or 50s, but the average age is 51. It may also be defined by a decrease in hormone production by the ovaries. Menopause is a natural biological process. It induces several uncomfortable symptoms, including hot flashes, depression, vaginal dryness, low libido, osteoporosis, fatigue, sleep disturbances, palpitations, and emotional imbalance *(Takahashi & Johnson 2015).* There are many effective treatments available, from lifestyle adjustments to hormone therapy. Also**,** the symptoms of menopause can be effectively treated with hormone replacement therapy (HRT), including estrogens combined with progestogens or estrogens alone. Using phytoestrogens such as aromatherapy may relieve menopausal symptoms and improve lipid profiles in postmenopausal women *(Malakouti et al., 2017).*

Aromatherapy uses essential oils extracted from herbs, flowers, and other plants to improve physical, emotional, and spiritual well-being and treat various diseases through inhaling aromatherapy, massage, or bath treatment. Many clinical studies on aromatherapy have shown that it reduces stress and pain, enhances alertness and feelings of relaxation, and reduces anxiety by stimulating endorphin production. Aromatic abdominal and back massage is considered in combination with essential oils. It is useful in improving blood circulation and activates the olfactory senses, which stimulate the limbic system. This effect alleviates menopausal manifestations that result from changes in hormonal production of the endocrine system, so aromatherapy triggers specific cells of the brain that affect the endocrine system. Previous research reported that aromatherapy and regular massage treatments might only decrease premenopausal complaints. Also, it helps decrease stress, insomnia, and depression and provides relaxation for perimenopausal women *(Gürler et al., 2020).*

Nurses contribute to women, children, and families health and well-being by enhancing practical skills and specialized care for preventing and managing problems.

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One of the crucial roles conducted by the nurse is to contribute to the prevention of such problems by identifying those with troublesome symptoms and providing the necessary support for exploring solutions to menopausal complaints. Therefore, nurses should assist women in coping with and solving the problems they may encounter in successful assessment for menopausal conditions. This assistance involves careful personal and family history, assessing risk factors, and menopausal symptoms. The nurse should educate menopausal women about exercise, diet, weight control, self-examination, herbal medicine, and aromatic massage *(Bakhtiari et al., 2019).*

2. Significance of the study

Menopause somatic symptoms are very common problems among menopausal women, which affect daily living and quality of life *(Hazlina et al., 2022).* The symptoms of menopause can be effectively treated with hormone replacement therapy (HRT), including estrogens combined with progestogens or estrogens alone. Many women are concerned about the risks of this therapy and, therefore, look for alternatives, as hormonal replacement therapy has many contraindications and has many complications such as breast and endometrium cancer. So many women prefer using other alternatives rather than hormonal replacement therapy to relieve menopausal symptoms; one of them is complementary therapies *(Roozbeh et al., 2019).*

The most common form of aromatherapy employed by nurses is massage. It is determined that massage with lavender oil relieves fatigue and pain and improves sleeping patterns by stimulating endorphins and reducing anxiety. Aromatherapy back and arm massage is safe and expected to be effective and has no side effects on menopausal women *(Mohammed et al., 2018).* Based on this, there is a growing body of research regarding the importance of alleviating somatic menopausal problems. So, the current research will cover the needs and problems of a cohort of the community representing menopausal women to evaluate the effect of aromatic massage therapy versus massage only on easing somatic menopausal problems.

3. Aim of the study

The study aimed to evaluate the effect of aromatic massage on somatic problems among a cohort of menopausal women. It was achieved through:

- Assess the presence of somatic problems among perimenopausal women.
- Investigate the effect of aromatic massage (on the back and arms) using lavender, clary sage rose, and jasmine dissolved in almond oil on easing somatic menopausal symptoms.
- Investigate the effect of massage alone (on back and arms) on easing somatic, menopausal symptoms.
- Comparing the effect of aromatic massage versus massage only on easing somatic menopausal symptoms.

3.1. Research Hypothesis

- Menopausal women exposed to aromatic massage therapy using lavender, clary sage, rose, and jasmine dissolved in the almond oil will have fewer somatic menopausal problems compared to their pre-intervention level.
- Menopausal women exposed to aromatic massage therapy using lavender, clary sage, rose, and jasmine dissolved in the almond oil will have fewer somatic menopausal problems compared to the control group who received massage alone.

4. Subjects & Methods

4.1. Research design

A quasi-experimental (pre/post-test, study/control) design was used to compare the aromatic massage with massage only in a series of tests (time serial) pre-intervention, post-intervention after five weeks, and follow-up after nine weeks of intervention. A quasi-experiment is an empirical interventional study used to estimate the causal impact of an intervention on the target population without random assignment. Quasi-experimental research shares similarities with the traditional experimental design or randomized controlled trial, but it specifically lacks the element of random assignment to treatment or control group *(Thomas, 2021).* In a pretest-posttest design, the dependent variable is measured once before the treatment is implemented and after it is implemented.

4.2. Study setting

The study was conducted at outpatient clinics of Ain Shams University Maternity Hospital. An educational hospital affiliated to Ain Shams University Hospital was established in 1930. It serves a very large sector of women and has a huge flow rate with a nominal cost. It provides many services to women, such as outpatient clinics, childbirth units, oncology early detection units, intensive care units, gynecological operations, breastfeeding counseling clinics, and postnatal units.

4.3. Subjects

A purposive sample of 74 menopausal women has been recruited in this study according to certain inclusion criteria: Women in the menopausal period aged from 45 years to 52 years and complaining of somatic menopausal symptoms. Exclusion criteria included women with an allergy to aromatherapy per a skin test, which was done during the recruitment stage in the form of rashes or skin inflammation. Also, women on any other line of management as hormonal replacement therapy were excluded.

Women were randomly assigned into two groups: The aromatic massage group (in which back and arm massage with the aromatherapy oils was used) and the back and arm massage only group (back and arm massage performed only).

The sample size was calculated based on the following sample size equation of Steven Thompson Equation *Khuanbai (2019).*

$$N = \frac{Z^2 (P (1-p)}{d2}$$ Where,

- N = Sample size
- Z: statistic for a level of confidence. (For the confidence level of 95%, which is conventional, the Z value is 1.96).
- P = The expected proportion in population based on previous studies.
- d=error percentage = (0.05). So,

$$N = \frac{(1.96)^2 (0.07 \times (1-0.07)}{.05 \times .05}$$

$$N = \frac{(1.96)^2 (0.07 \times 0.93)}{.05 \times .05}$$

$$N = \frac{4 \times 0.260}{.0025} = 104$$

Based on the above formula, the sample size required for the study was 104 menopausal women, reaching 74 women because of 30 dropouts.

4.4. Tools of data collection

4.4.1. A Structured Interviewing Questionnaire

After reviewing the relevant *Hoyt and Falconi (2015)*, the researcher designed it to collect the necessary data related to the study's aim. The interviewing questionnaire was developed in the Arabic language. The time consumed to fill the questionnaire was about 15-20 minutes. It includes multiple-choice and closed-ended questions, covering three parts as the following.

Part 1 was designed to assess general demographic data such as age, marital status, education, residence, and occupation.

Part 2 was developed to assess menstrual history as age at menarche, duration of menstrual flow, regularity of menstruation, pain during menstruation, and severity of pain.

Part 3 assessed obstetrical history, including the number of pregnancies, births, abortions, mode of last delivery, and family planning methods used.

4.4.2. Kupperman index (menopausal symptoms)

The Kupperman index is a numerical index adopted from *Ryu et al. (2020)* assessing menopausal symptoms and includes nine menopausal symptoms: Hot flashes (vasomotor), paresthesia, vertigo, fatigue, arthralgia or myalgia, headache, palpitation, formication, and urinary tract infection.

Scoring system

The items were rated on the following four-pointed scale: None (0), mild (1), moderate (2), and severe (3). The total score ranged from (0 to 27). Scoring system was as the following: "no complaint" (total score 0-6), "mild" (total score 7-15), "moderate" (total score 16-20), or "severe" (total score >20).

4.4.3. Visual Analogue Scale (VAS)

It was adopted by *Berens (2015)* to assess the history of menstrual pain degree among menopausal women. It consisted of a 10-cm line anchored at each end with words such as "no pain" was scored as 0; mild pain was scored from 1-3; moderate pain was scored from 4-7, and (severe pain) was scored 8-10. Cronbach's alpha revealed internal reliability of 0. 94.

4.5. Procedures

Tools were evaluated for feasibility and content validity by five experts from the Maternity-Gynecological Nursing Department and the Public Health Department, Faculty of Nursing & Medicine, Ain Shams University. Their comments were considered.

Ethical considerations: Before starting the study, ethical approval was obtained from the Scientific Research Ethical Committee of the Faculty of Nursing at Ain Shams University. All administrative approvals were guaranteed before the data collection process, and informed consent was obtained from participants after explaining the purposes of the study. No harmful methodology was used with participants. Each participant had the right to withdraw from the study at any time. Human rights were granted. Data was confidential, and a coding system for data was used.

A pilot study was carried out in three weeks on 10% of the sample (eight women). The pilot study was conducted to assess the clarity and comprehensiveness of the tools and test the study process's feasibility. The necessary modifications were done based on the pilot study findings, such as (omission and addition of some questions from/to the tools) to strengthen their contents, for more simplicity and clarity, or to be concise and focused. These groups were excluded from the study sample.

Aromatherapy oils: The researcher bought pure almond oil, clary sage, lavender, rose, and jasmine from the Faculty of Agriculture at Ain Shams University. The oils were checked, prepared, and stored under the supervision and instructions of specialists from the Faculty of Pharmacy, at Ain Shams University to ensure their pureness and quality and to adjust the doses of each component before use. Also, the researchers had a training course regarding the usage and technique of such aromatic content and massage in a research center.

Fieldwork: The study was carried out through three phases: Assessment, implementation, and evaluation. These phases were carried out from June 2021 to August 2021, covering three months. The researchers visited the previously mentioned setting three days per week from 9.00 am to 2.00 pm until the sample size was completed.

Assessment phase: At the beginning of the interview, each researcher introduced herself to the participants and explained the aim of the study to gain their trust and confidence to participate in the study.

The researchers interviewed women to fill out the interviewing questionnaire that assessed their general characteristics. Then researchers asked menopausal women about's somatic symptoms.

The tools of data collection took 25-30 minutes to be completed. The data obtained during this phase constituted the baseline for further comparisons to assess the effect of the interventions. Then the menopausal women involved in the study were divided into the control group (received massage only) and the study group (received aromatic massage)

Implementation phase: In massage only group (control group), each woman received massage-only therapy. Massage sessions are performed in a private clinic room to ensure women's privacy. The treatment involved back and arm massage. They have received 20 min of massage therapy sessions two times per week for five weeks (10 sessions in total) by the following technique:

- Back massage: This technique uses the whole hand "effleurage," which uses both hands' whole surface. Massage reasonably firmly upwards from the lower back all the way up to the neck, then (gentler pressure), circle around, and back to the lower back region from 5 to 10 minutes.
- Arm massage: Palmer massage is the technique of arm massage. The researcher started with her hands on the women's shoulder and slowed down toward the elbow. This technique is repeated three more times. When the entire right arm of the woman is massaged, move over to the left side of the table, and repeat the process to massage the entire left arm. Each arm took about 5-7 minutes to complete.

For the study group (aromatic massage group): Women in this group received back and arm massages in the same previously mentioned technique using lavender, clary sage, rose, and jasmine dissolved in almond oil. The massage was done by warming the massage oil on the hands and applying a modest amount of 3 ml with both hands. Both groups received 20 min massage therapy sessions twice weekly for five weeks (A total of ten sessions).

Evaluation phase and follow-up: The evaluation was done by comparing the effect of aromatherapy massage versus massage only on somatic menopausal symptoms. Both groups were assessed regarding somatic menopause symptoms at the beginning of the study and reassessed immediately after the tenth session (after five weeks of intervention) in the same setting, and follow-up was done after another two weeks to assess the presence of the symptoms.

4.6. Limitations of the study

There were some difficulties in data collection due to interruptions in the work setting and the necessity to have a private room for intervention. Also, there was a drop out of 30 women during the follow-up phase, so it was difficult to replacement for another 30 women.

4.7. Data analysis

The collected data was revised, coded, tabulated, and introduced to a personal computer using a statistical package for social sciences (IBM SPSS 20.0). Data were presented as the following:

- Frequency and percentage of non-numerical data.
- Mean and standard deviation and range for parametric numerical data.
- F-test is used for testing the equality of two variances from different populations and equality of several means with the technique of ANOVA.
- The Chi-square test is used to test the population variance against a specified value, testing the goodness of fit of some probability distribution and the independence of two attributes.
- *P*-value equal or less than 0.05 considered significant value, $p>0.05$ is non-significant, $p<0.01$is considered highly significant.

5. Results

Table 1 describes the demographic characteristics of the studied groups. The table reveals a comparable mean age of the studied women, with the mean age of the aromatic massage group, was 47.83±5.23 vs. 49.05±3.98 for the massage-only group. More than half of both groups were married (64.9% vs. 78.4% of aromatic massage and massage-only groups, respectively). Around half of women had secondary education, but more than a quarter of women had university and post-graduate education. Also, there are no statistically significant differences between the two groups regarding age, marital status, education, and residence except for occupation. The semi-professional occupation was the highest frequency in the two studied groups, and manual working presented as less than one-third of aromatic massage and massage only groups (27.0% and 29.7%, respectively).

Table 2 describes the menstrual history of the studied groups. It shows no statistically significant differences between the two studied groups regarding menstrual data, except for the menstrual cycle duration. The highest frequency was 2-5 days in the two studied groups (78.4% vs. 59.5% of aromatic massage and massage-only groups, respectively).

Table 3 describes obstetrical and family planning history. There were no statistically significant differences between the two groups regarding obstetrical history, mode of last delivery, and contraceptive methods.

Table 4 shows the frequency of menopausal symptoms among studied groups regarding somatic complaints of perimenopausal period pre-intervention. A high percentage of women in both groups had mild hot flushes (51.4% and 35.1%), moderate fatigue (45.9% and 37.8%), mild myalgia and arthralgia (35.1% and 35.1%), moderate headache (51.4% and 56.8%), mild heart palpitation (40.5% and 37.8%) for aromatic massage and massage only group.

Table 5 clarifies the comparison of current somatic menopausal problems among aromatic massage groups pre, post, and follow-up of intervention; it reveals a significant

reduction in all menopausal problems in post-intervention and follow-up compared to pre-intervention with statistically significant differences in all problems except urinary tract infection.

Table 6 clarifies the comparison of current somatic menopausal problems among massage-only groups pre, post, and follow-up intervention; it reveals that there was a significant reduction in menopausal problems in post-intervention and follow-up compared to pre-intervention with statistically significant differences in paresthesia, fatigue, myalgia and arthralgia, and urinary tract infection.

Figure 1 reveals that the total mean score of somatic symptoms for the aromatic massage group decreased immediately after intervention (10^{th} session) and after another two weeks compared to before the intervention.

Figure 2 reveals that the total mean score of somatic menopausal symptoms for massage only group decreased after intervention (immediately after the 10^{th} session) and after another two weeks of intervention compared to before the intervention.

Table 7 shows the comparison between the two studied groups regarding the total mean score of somatic symptoms before and after the intervention. The mean scores of somatic problems in the aromatic massage group were less than in the massage-alone group immediately after intervention (10^{th} session) and after another two weeks of intervention. All differences were statistically significant.

Table (1): Comparison of the studied groups' demographic data before intervention (N=74).

Variables	Aromatic massage group (n=37)		Massage-only group (n=37)		Test	P-value
	N	%	N	%		
Age						
45-<49	25	67.5	20	54.1	F= 2.20	0.115
50-<52	12	32.5	17	45.9		
Mean ±SD	47.83 ± 5.23		49.05±3.98			
Marital Status						
Single	13	34.9	8	21.6	X^2=4.88	0.86
Married	24	64.9	29	78.4		
Educational level						
Reads and writes	2	5.4	1	2.7		
Primary+ Preparatory	6	16.2	8	21.6	X^2=5.30	0.51
Secondary	19	51.35	18	48.6		
University/Postgraduate degree	10	27.1	10	27.1		
Residence						
Urban	30	81.1	24	62.2	X^2=3.22	0.65
Rural	7	18.9	13	37.8		
Occupation						
Manual working	10	27.0	11	29.7		
Semi-professional	18	48.6	22	59.5	X^2 =16.19	0.002
Professional	9	24.3	4	10.8		

Table (2): Comparison of the studied groups' menstrual history (N=74).

Variables	Aromatic massage group (n=37)		Massage-only group (n=37)		Test	P-value
	N	%	N	%		
Age of menarche						
9-12	19	51.4	17	45.9	F=2.340	0.101
13-16	18	48.6	20	54.1		
Mean±SD	12.54±1.62		12.97±2.31			
Duration of menses						
2-5 days	29	78.4	22	59.5	F=25.039	0.000
6-10days	8	21.6	15	40.5		
Mean±SD	2.72±1.62		5.78±2.75			
Regularity of menses						
Regular	24	64.8	31	83.7	X^2 =3.85	0.416
Irregular	13	35.2	6	16.3		
Dysmenorrhea						
Yes	26	70.3	21	56.8	X^2=1.61	0.44
No	11	29.7	16	43.2		
Severity of pain						
No pain (0)	11	31.1	15	40.5		
Mild (1-3)	14	37.8	20	45.1	X^2 =0.51	0.97
Moderate (4-7)	13	35.1	12	32.4		
Severe (8-10)	10	27.1	5	43.5		

Table (3): Comparison of the studied groups' obstetric and family planning history before intervention (N=74).

Variable	Aromatic massage group (n=37)		massage only group (n=37)		X^2	P-value
	N	%	N	%		
Gravida	31	83.8	35	94.6		
Parity	35	94.6	34	91.8	9.06	0.06
Abortion	20	54.1	11	29.7		
Mode of last delivery						
Vaginal	27	79.4	27	79.4	0.51	0.97
Cesarean section	8	20.6	7	20.6		
Family planning used						
Yes	31	83.8	19	51.4	3.36	0.06
No	6	16.2	18	48.6		

Table (4): Frequency and percentage distribution of somatic complaints of the perimenopausal period in studied groups (pre- interventional) (N=74).

Symptoms	Aromatic massage group (n=37)		Massage only (n=37)	
	N	%	N	%
Hot flushes				
None	9	24.3	12	32.1
Mild	19	51.4	13	35.1
Moderate	6	16.2	10	27
Severe	3	8.1	2	5.4
Paresthesia				
None	10	27.0	18	48.6
Mild	2	5.4	5	13.5
Moderate	25	67.6	14	37.8
Severe	0	0	0	0
Vertigo				
None	3	8.1	5	13.5
Mild	9	24.3	16	43.2
Moderate	22	59.5	14	37.8
Severe	3	8.1	2	5.4
Fatigue				
None	0	0	1	2.7
Mild	10	27	11	29.7
Moderate	17	45.9	18	48.6
Severe	10	27	7	18.9
Myalgia and arthralgia				
None	5	13.5	11	29.7
Mild	9	24.3	8	21.6
Moderate	13	35.1	13	35.1
Severe	10	27	5	13.5
Headache				
None	2	5.4	1	2.7
Mild	10	27	7	18.9
Moderate	19	51.4	21	56.8
Severe	6	16.2	8	21.6
Heart Palpitation				
None	6	16.2	10	27.0
Mild	15	40.5	14	37.8
Moderate	12	32.4	12	32.4
Severe	4	10.8	1	2.7
Formication				
None	5	13.5	10	27.0
Mild	12	32.4	14	37.8
Moderate	20	54.1	12	32.4
Severe	0	0	1	2.7
Urinary tract infection				
None	15	40.5	26	70.3
Mild	15	40.5	7	18.9
Moderate	7	18.9	2	5.4
Severe	0	0	2	5.4

Table (5): Comparison of aromatic massage group somatic complaints immediately after intervention and at follow-up (N=74).

Symptoms	Pre-intervention		Post-intervention After the 10th session (5 weeks of intervention)		Follow up after two weeks (After seven weeks of intervention)		X^2	P-value
	N	%	N	%	N	%		
Hot flushes								
None	9	24.3	21	56.8	27	73.0	12.97	0.043
Mild	19	51.4	12	32.4	9	24.3		
Moderate	6	16.2	4	10.4	1	2.7		
Severe	3	8.1	0	0	0	0		
Paresthesia								
None	10	27.0	16	43.2	22	59.5	19.2	0.003
Mild	2	5.4	14	37.8	11	29.7		
Moderate	25	67.6	7	18.9	4	10.8		
Severe	0	0	0	0	0	0		
Vertigo								
None	3	8.1	21	56.8	24	64.9	43.6	0.000
Mild	9	24.3	11	29.7	9	24.3		
Moderate	22	59.5	4	10.8	4	10.8		
Severe	3	8.1	1	2.7	0	0		
Fatigue								
None	0	0	20	54.1	25	67.6	40.3	0.000
Mild	10	27	12	32.4	8	21.6		
Moderate	17	45.9	4	10.8	4	10.8		
Severe	10	27	1	2.1	0	0		
Myalgia and arthralgia								
None	5	13.5	25	67.6	25	67.6	55.8	0.000
Mild	9	24.3	8	21.6	9	24.3		
Moderate	13	35.1	4	10.8	3	8.1		
Severe	10	27	0	0	0	0		
Headache								
None	2	5.4	22	59.5	22	59.5	96.3	0.000
Mild	10	27	11	29.7	12	32.4		
Moderate	19	51.4	3	8.1	3	8.1		
Severe	6	16.2	1	2.7	0	0		
Heart Palpitation								
None	6	16.2	20	54.1	24	64.9	38.6	0.000
Mild	15	40.5	13	35.1	12	32.4		
Moderate	12	32.4	3	8.1	1	2.7		
Severe	4	10.8	1	2.7	0	0		
Formication								
None	5	13.5	19	51.4	28	75.7	31.00	0.000
Mild	12	32.4	14	37.8	7	18.9		
Moderate	20	54.1	4	10.8	2	5.4		
Severe	0	0	0	0	0	0		
Urinary Tract infection								
None	15	40.5	27	73.0	31	83.8	9.12	0.167
Mild	15	40.5	8	21.6	5	13.5		
Moderate	7	18.9	2	5.4	1	2.7		
Severe	0	0	0	0	0	0		

Table (6): Comparison of massage therapy group somatic complaints immediately after intervention and at follow-up (N=74).

	Pre-intervention		Post-intervention After the 10th session (5 weeks of intervention)		Follow up after two weeks (After seven weeks of intervention)		X^2	P-value
	N	%	N	%	N	%		
Hot flushes								
None	12	32.1	12	32.4	16	43.2		
Mild	13	35.1	18	48.6	14	37.8	7.93	0.243
Moderate	10	27	6	16.2	6	16.2		
Severe	2	5.4	1	2.7	1	2.7		
Paresthesia								
None	24	64.9	21	56.8	18	48.6		
Mild	5	13.5	6	16.2	5	13.5	30.13	0.000
Moderate	8	21.6	10	27.0	14	37.8		
Severe	0	0	0	0	0	0		
Vertigo								
None	4	10.8	8	21.6	5	13.5		
Mild	20	54.1	18	48.6	16	43.2	7.99	0.238
Moderate	11	29.7	10	27.0	14	37.8		
Severe	2	5.4	1	2.7	2	5.4		
Fatigue								
None	1	2.7	3	8.1	9	24.3		
Mild	11	29.7	13	35.1	16	43.2	12.98	0.04
Moderate	18	48.6	16	43.2	10	27.0		
Severe	7	18.9	5	13.5	2	5.4		
Myalgia								
None	11	29.7	10	27.0	11	29.7		
Mild	8	21.6	15	40.5	16	43.2	15.2	0.02
Moderate	13	35.1	9	24.3	8	21.6		
Severe	5	13.5	3	8.1	2	5.4		
Headache								
None	1	2.7	12	32.4	2	5.4		
Mild	7	18.9	18	48.6	14	37.8	5.11	0.53
Moderate	21	56.8	0	0	17	45.9		
Severe	8	21.6	7	18.9	4	10.8		
Heart Palpitation								
None	10	27.0	12	43.2	13	35.1		
Mild	14	37.8	16	32.4	16	43.2	7.32	0.292
Moderate	12	32.4	8	21.6	8	21.6		
Severe	1	2.7	1	2.7	0	0		
Formication								
None	10	27.0	14	37.8	19	51.4		
Mild	14	37.8	16	43.2	11	29.7	8.82	0.81
Moderate	12	32.4	7	18.9	7	18.9		
Severe	1	2.7	0	0	0	0		
Urinary tract infection								
None	26	70.3	23	62.2	25	67.6		
Mild	7	18.9	9	24.3	8	21.6	14.0	0.03
Moderate	2	5.4	5	13.5	4	8.2		
Severe	2	5.4	0	0	0	0		

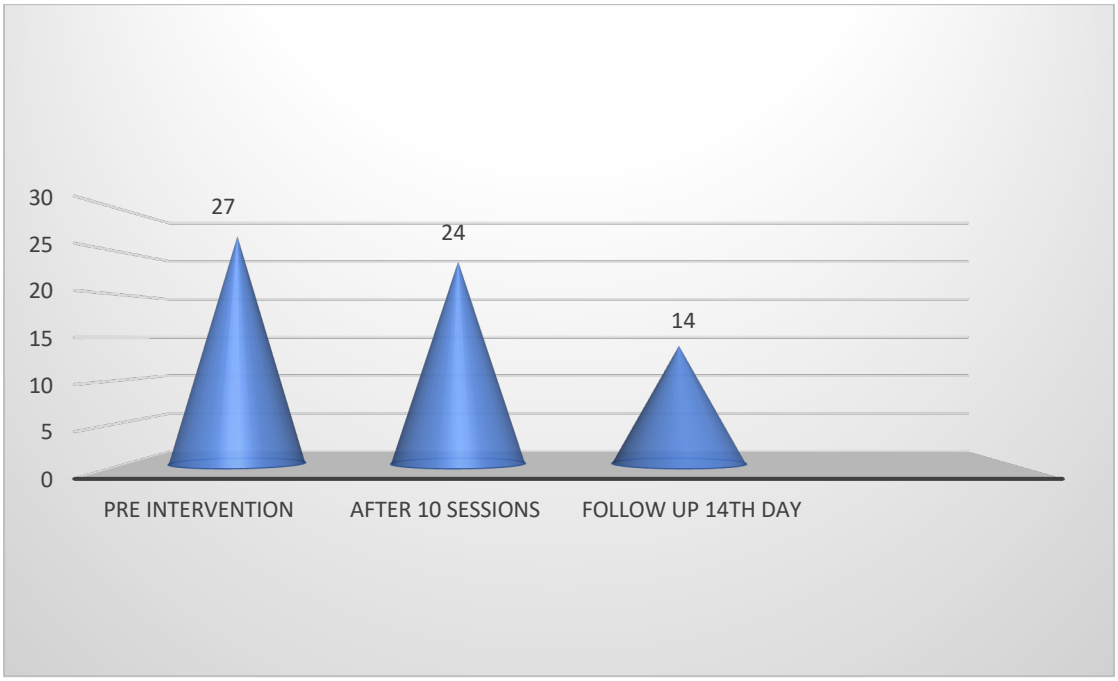

Figure (1): Comparison of the total symptoms mean score of the aromatic massage group throughout the intervention phases.

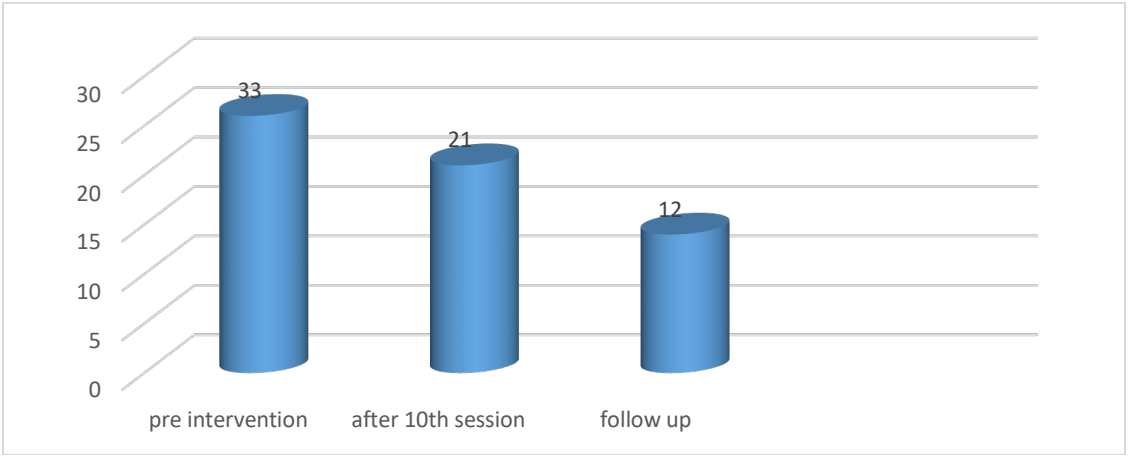

Figure (2): Comparison of the total symptoms' mean score of the massage group throughout the intervention phases.

Table (7): Mean score of somatic symptoms of the Aromatic massage and massage-only groups throughout the intervention phases (N=74).

Intervention phase	Aromatic massage group	Massage only group	F test	P-value
	Mean ± SD	Mean ± SD		
Before intervention	24.32±8.67	23.35±9.19	0.305	7.373
After Intervention (10th session)	11.00±9.01	23.18±19.99	15.35	0.000
Follow Up after (2 weeks)	12.45±10.35	14.81±11.07	30.107	0.000

6. Discussion

Most women suffer from menopausal symptoms, but this can vary from one individual to another. These symptoms include somatic problems such as hot flushes and urinary tract symptoms. In Egypt, women do not prefer to use medication for menopausal symptoms as they believe it may cause some side effects and complications. On the other hand, there is a growing experimental study about the effect of alternative methods such as acupuncture, acupressure, stimulation, massage, and aromatherapy to treat menopausal symptoms. Nursing research should move forward, supporting the evidence of menopausal symptoms relieved by such alternative medicine *(Tsai, 2020).* The present study evaluated the effect of aromatic massage on somatic problems among a cohort of menopausal women.

Regarding women's general characteristics in this study, women's age ranged from 45 to less than 52 years in

aromatic massage and massage-only groups with a mean of 47.83±5.23 and 49.05±3.98, respectively. Regarding marital status, more than half of both groups were married. Around one-half of women had secondary education, but more than a quarter had university and post-graduate education. The semi-professional occupation was presented in the highest percentage of women in the two groups. This result agreed with the study of *Rahman et al. (2010)*, who found that the mean age at menopause was 51.28±2.28 years. 71.9% were married, and 89.6% had secondary and intermediate education. 46.1% of the participants were housewives.

According to the current study and on assessing the presence of the menopausal symptoms pre-intervention, the current study findings reveal that the main complaints experienced by women in both groups were hot flushes, fatigue, myalgia, and arthralgia, headache, palpitation. These symptoms are the most common somatic symptoms in menopausal women due to hormonal change. This result is matched with *Sievert et al. (2012)* in a four-country comparison of symptom clusters at midlife. They reported dizziness, fatigue, headache, palpitation, and joint pain, among the symptoms reported by the studied women from Morocco and Lebanon.

In investigating the effect of aromatic massage on menopausal problems pre, post, and follow-up of intervention, the current study reveals a significant reduction in all menopausal problems in post-intervention and follow-up compared to pre-intervention with statistically significant differences in all problems except urinary tract infection. Meanwhile, assessing somatic menopausal problems among massage-only groups pre, post, and follow-up of intervention; reveals a significant reduction in some menopausal symptoms in post-intervention and follow-up compared to pre-intervention with statistically significant differences in parenthesis, fatigue, myalgia, and arthralgia, and urinary tract infection, which is supporting the first research hypothesis.

The second study hypothesis was that menopausal women exposed to aromatic massage therapy using lavender, rose and jasmine dissolved in the almond oil will have improved somatic menopausal problems compared to the control group who received massage only. This hypothesis was supported by the current study findings that reveal a statistically significant difference between both groups immediately after the 10th session of the intervention (five weeks of intervention) and after another two weeks of the intervention (follow-up). At the same time, there was no statistical significance difference between symptoms mean scores in both groups before intervention. These results highlighted the visible effect of such alternative medicine in decreasing menopausal symptoms.

Similarly*, Salehi et al. (2020)* conducted a systematic review study to evaluate the effectiveness of lavender aromatherapy on physical and psychological symptoms in menopausal women. A comprehensive systematic literature search in the electronic databases including the Cochrane Library, MEDLINE (PubMed), Ovid, Embase, Scopus, ProQuest, Web of Science, and Google scholar, as well as Magiran, SID, and Irandoc for Persian literature review up to January 2020. All randomized controlled trials and quasi-experimental studies that evaluated the impact of aromatherapy with lavender alone or in combination with other aromas on physical and psychological symptoms in menopausal women were included in this systematic review and found that aromatherapy with lavender in postmenopausal women may cause an improvement in most of the physical and psychological symptoms

Roozbeh et al. (2019) examined the effect of lavender on sleep, sexual desire, vasomotor, psychological, and physical symptom among menopausal and older women. The results reported the effectiveness of using lavender, either in capsule form or aromatherapy, on the improved quality of sleep, depression, anxiety, sexual desire, and psychological and physical symptoms. These results follow our study findings that revealed a significant effect of aromatherapy in minimizing menopausal symptoms.

In similar, *Nikjou et al. (2018)* studied The Effect of Lavender Aromatherapy on the symptoms of menopause, a double-blind cross-over clinical trial carried out on 100 menopause women (between 45 and 155 years old) referring to health centers in Ardabil revealed that Using the lavender aromatherapy decreases menopause symptoms. According to the undesirable effect of the menopause symptoms, these findings suggest that aromatherapy massage may effectively treat perimenopausal symptoms such as hot flushes. However, whether the positive effects were from the aromatherapy, the massage, or both

could not be verified.

Gürle et al. (2020) conducted a quasi-experimental study to investigate the effects of lavender oil on sleep and quality of life of menopausal women through steam inhalation of lavender compared to the placebo group. They found significantly fewer symptoms than those before the administration (p<0.001) and those of the placebo group (p < 0.001). Similarly, for the intervention group, the total median MENQOL scores after the administration of the aromatherapy were found to be significantly lower than the scores prior to the administration (p<0.001) as well as the scores of the placebo group (p<0.001). These findings assured that aromatherapy could be effective in reducing menopausal somatic problems.

Supporting the current study finding, a study conducted by *Lee et al. (2021)* aimed to determine the effect of aromatherapy massage on perimenopausal symptoms. This study was a randomized placebo-controlled clinical trial conducted at a menopause clinic in Iran. Each message group received a 30-minute massage twice a week for four weeks. Group one received a 30-minute massage twice weekly with a mixed aroma oil blend of lavender, rose geranium, rose, and rosemary. Group two received a 30-minute massage twice weekly with odorless liquid soft paraffin. Group three received no treatment. The Menopause Rating Scale (MRS) score differed significantly among the three groups. Menopause symptoms decreased from 21.86 to 13.11 after aromatherapy massage and from 21.72 to 19.7 after placebo massage. A statistically significant difference was found between the pre and post-MRS scores for aromatherapy massage and placebo massage but did not

differ significantly in the control group. When comparing the aromatherapy and placebo massage groups, the menopausal score after the aromatherapy massage was significantly lower than that of the placebo massage group.

A study evaluating massage therapy for alleviating menopausal transitional period symptoms among women employed at Suez Canal University Hospital found a significant improvement in some menopausal transitional period symptoms. There was a significant decrease in the frequency of hot flushes attacks and night sweats among women in the massage group. Intensity and length of hot flushes attacks decreased slightly among the study group without statistically significant differences. Also, the massage group observed significant improvements in the symptom of dyspareunia and all urinary symptoms (stress and urge incontinence and dysuria) throughout the study *(Abd Allah, 2018).* This similarity may be due to similar sample characteristics between the two studies.

On the other hand, *Kim et al. (2016)* evaluated the effects of aromatherapy on menopausal symptoms, perceived stress, and depression in middle-aged women. The systematic review included studies from the electronic databases; 73 articles were selected. They revealed limited evidence suggesting that aromatherapy for middle-aged women may be effective in controlling menopausal symptoms, perceived stress, and depression, although aromatherapy massage was favorably effective in reducing the menopausal symptoms compared to the control group.

In summary, the present study emphasized important evidence concerning the remarkable effect of both aromatherapy massage and massage only on easing somatic menopausal symptoms. However, aromatherapy massage was more effective than only massage. The current study results also support previous studies that reported that aromatherapy benefits many menopausal symptoms. From the researcher's point of view, nurses' research should move forward, supporting the evidence of relieving perimenopausal symptoms by such alternative medicine.

7. Conclusion

The current study concluded that menopausal women exposed to aromatic massage therapy using lavender, clary sage, rose, and jasmine dissolved in the almond oil has fewer somatic menopausal problems compared to their pre-intervention level, as well as compared to control who received massage alone.

8. Recommendations

In the light of previous study findings, the current study recommended:

- Developing counseling programs for women about aromatic massage therapy at the gynecological clinic.
- Establishing education centers at public health services to facilitate the follow-up of perimenopausal women.
- Further studies are needed to assess the effect of other alternative medicine on managing menopausal symptoms.
- Replication of the study using a qualitative approach to assess women's experience with aromatherapy technique.

9. References

Abd Allah, I. N. (2018). Massage therapy for alleviating menopausal transitional period symptoms among women employed at Suez Canal University Hospital, *IOSR Journal of Nursing and Health Science, 7*(1), 23-33. https://doi.org/10.9790/1959-0701012333.

Bakhtiari, S., Paki, S., Khalili A, Baradaranfard, F., Mosleh, S., & Jokar, M. (2019). Effect of lavender aromatherapy through inhalation on quality of life among postmenopausal women covered by a governmental health center in Isfahan, Iran: A single-blind clinical trial. *Complementary Therapy in Clinical Practice., 34*, 46-50. https://doi.org/10.1016/j.ctcp.2018.11.001.

Berens, P. D. (2015). Breast pain: Engorgement, nipple pain, and mastitis. Clin Obstet Gynecol., *58*(4), 902-914. https://doi.org/10.1097/GRF.0000000000000153.

Gürler, M., Kizilirmak, A., & Baser, M. (2020). The effect of aromatherapy on sleep and quality of life in menopausal women with sleeping problems: A non-randomized, placebo-controlled trial. *Complement Med Res., 27*(6), 421-430. https://doi.org/10.1159/000507751.

Hazlina, N. H. N., Norhayati, M. N., Bahari, I. S., & Arif N. A. N. M. (2022). Prevalence of psychosomatic and genitourinary syndrome among menopausal women: A systematic review and meta-analysis. *Front Med., 9*, 848202. https://doi.org/10.3389/fmed.2022.848202.

Hoyt, L. T., & Falconi, A. (2015). Puberty and perimenopause: Reproductive transitions and their implications for women's health. Soc Sci Med., 132, 103-112. https://doi.org/10.1016/j.socscimed.2015.03.031.

Khuanbai, Y. (2019). Re: Calculation of sample size. Retrieved from: https://www.researchgate.net/post/Calculation_of_Sample_Size/5deb25caf8ea52201008c327/citation/download.

Kim, S., Song, J. A., Kim, M. E., & Hur, M. H. (2016). Effects of aromatherapy on menopausal symptoms, perceived stress and depression in middle-aged women: A systematic review. *Journal of Korean Academy of Nursing*, *46*(5), 619–629. https://doi.org/10.4040/jkan.2016.46.5.619.

Lee, H. W., Ang, L., Choi, J., & Lee, M. S. (2021). Aromatherapy for managing menopausal symptoms: A systematic review and meta-analysis of randomized placebo-controlled trials. *Journal of Alternative and Complementary Medicine*, *27*(10), 813–823. https://doi.org/10.1089/acm.2020.0315.

Malakouti, J., Jabbari, F., Asghari-Jafarabadi, M., Javadzadeh, Y., & Farshbaf-Khalili, A. (2017). The impact of ginkgo Biloba tablet and aromatherapy inhaler combination on sexual function in females during postmenopausal period: A double-blind, randomized controlled trial. *International Journal of Women's Health and Reproduction Sciences*, *5*(2), 129–136. https://doi.org/10.15296/ijwhr.2017.24.

Mohamed, H., Hussein, Z., & Mohamed A. (2021). Effect of abdominal massage on gastrointestinal function among enterally fed critically ill patients. *Egyptian Journal of*

Health Care, 12(1), 801-813 https://doi.org/10.21608/EJHC.2021.144291.

Nikjou, R., Kazemzadeh, R., Asadzadeh, F., Fathi, R., & Mostafazadeh, F. (2018). The Effect of lavender aromatherapy on the symptoms of menopause. *Journal of the National Medical Association*, *110*(3), 265–269. https://doi.org/10.1016/j.jnma.2017.06.010.

Rahman, S. A., Zainudin, S. R., & Mun, V. L. (2010). Assessment of menopausal symptoms using modified Menopause Rating Scale (MRS) among middle-age women in Kuching, Sarawak, Malaysia. *Asia Pac Fam Med.*, *9*(1), 5. https://doi.org/10.1186/1447-056X-9-5.

Roozbeh, N., Ghazanfarpour, M., Khadivzadeh, T., Kargarfard, L., Dizavandi, F. R., & Shariati, K. (2019). Effect of lavender on sleep, sexual desire, vasomotor, psychological and physical symptom among menopausal and elderly women: A systematic review. *J Menopausal Med., 25*(2), 88-93. https://doi.org/10.6118/jmm.18158.

Ryu, K-J, Park, H., Kim, Y. J., Yi, K. W., Shin, J. H., Hur, J. Y., & Kim, T. (2020). Comparison of various menopausal symptoms and risk factor analysis in Korean women according to stage of menopause. *Maturitas., 140*, 41-48. https://doi.org/10.1016/j.maturitas.

Salehi-Pourmehr, H., Ostadrahimi, A., Ebrahimpour-Mirzarezaei, M., & Farshbaf-Khalili, A. (2020). Does aromatherapy with lavender affect physical and psychological symptoms of menopausal women? A systematic review and meta-analysis. *Complementary therapies in clinical practice*, *39*, 101150. https://doi.org/10.1016/j.ctcp.2020.101150.

Sievert, L. L., & Obermeyer, C. M. (2012). Symptom clusters at midlife: A four-country comparison of checklist and qualitative responses. *Menopause, 19*(2), 133-144. https://doi.org/10.1097/gme.0b013e3182292af3.

Takahashi, T. A., & Johnson, K. M. (2015). Menopause, *The Medical Clinics of North America. 99*(3), 521-34. https://doi.org/10.1016/j.mcna.2015.01.006.

Thomas, l. (2021). Preparing for graduate school interview. Scribbr. https://www.scribbr.com/author/laurenthomas/

Tsai, J., Chung, Y-C, Chen, F-P, Yeh, M-L. (2020). Effect of aromatherapy on menopausal symptoms, heart rate variability, and sleep quality in women. *Hu Li Za Zhi*, *67*(1), 44–54. https://doi.org/10.6224/JN.202002_67(1).07.