

EFFECT OF AROMATHERAPY BACK MASSAGE VERSUS ACUPRESSURE SAN YIN JIAO (SP6) ON LABOR PAIN INTENSITY AND DURATION AMONG PRIMIGRAVIDAS

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Abstract:

Background: Labor pain is considered to be one of the worst pains experienced by most women in their lifetime. It's thought to be an unforgettable and personalized encounter. It is related to the interaction between physiological factors, such as uterine contractions and cervical dilation, and psychological factors, such as anxiety and stress. **The aim of this study** is to determine the effect of aromatherapy back massage versus acupressure San Yin Jiao (SP6) on labor pain intensity and duration among primigravidas. **Design:** A Quazi- experimental research design was used. **Setting:** This study was conducted at the labor and delivery unit at El Shatby Maternity, University Hospital in Alexandria. **Sample:** A convenient sample of 80 laboring women were recruited according to certain criteria and divided into two equal groups (Aromatherapy back massage group and Acupressure San Yin Jiao (SP6) group). **Tools:** Three tools were used for data collection: an interviewing assessment sheet, visual analog scale and a modified version of Chamber Price pain rating scale. **Results:** Regarding labor pain, the study revealed that there was a statistically significant difference between pre and post intervention in the aromatherapy back massage group and acupressure San Yin Jiao (SP6) group ($p < 0.001$ and $p = 0.040$) respectively. In addition, there was a statistically significant difference between the two groups after the second post intervention ($p = 0.029$). Moreover, there was also a statistically significant difference among the two groups related to the duration of first and second stage ($p < 0.001$ and $p < 0.001$) respectively. **Conclusion:** The application of Aromatherapy back massage and Acupressure San Yin Jiao (SP6) has a significant effect on reducing labor pain and duration. **Recommendation:** In service training program regarding the application of Aromatherapy back massage and Acupressure San Yin Jiao (SP6) at the hospital to decrease labor pain

Keywords: labor pain, Aromatherapy back massage, Acupressure San Yin Jiao (SP6), pain management, primigravida.

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Introduction

Childbirth constitutes both physiological and emotional struggle for women. As labor proceeds, it represents a period of contradictory feelings, excitement and apprehension may coexist

alongside happiness and satisfaction. Labor and delivery are incredibly painful process even though they are natural process. Parturient women often experience pain from dilating of cervix,

contractions of the uterus, as well as the fetal head pressure on the pelvic floor muscles (Mohaghegh et al., 2020).

One of the key determinants of mother and fetal outcomes is the duration of labor. Prolonged labor duration can cause uterine rupture, postpartum hemorrhage and puerperal infection as well as increased morbidity and mortality rates for mothers and neonates. During process of labor persistent pain, tension and fear had a detrimental effect on increase oxygen consumption, increase blood pressure and liberation of catecholamine which decreases uterine activity and blood flow, alters the labor and delivery experience, and reduces women's the ability to deal with the pain lead to more pain (Whitburn et al., 2019).

Non-pharmacological pain relieve (NPR) techniques aimed to enhance comfort and promote sleep. These techniques can be simple, effective, and they haven't adverse effects, increasing mother satisfaction, and preventing suffering without the need for medication (Gönenç & Terzioğlu, 2020). Non-pharmacological pain relieve methods used in labor are relaxation technique, imagery, breathing exercise, TENS, hydrotherapy, hypnosis, therapeutic touch, both warm as well as cold applications, aromatherapy, massage and acupressure (Smith et al., 2018).

Aromatherapy represents a traditional therapeutic method that uses aromatic oils substances derived from stalks, leaves, flowers, fruits, and seeds of fragrant plants that have effects on nervous and respiratory systems to manage many different medical conditions (de Melo et al., 2023). Lavender oil is known as medicinal herb that consists of ketones, esters, linalyl and linalool for its powerful effect as antibacterial, anti-inflammatory, and analgesic properties for modulating pain, reducing inflammation and relaxing smooth muscles (Lisboa et al., 2023; You

et al., 2024). Aromatherapy massage with aromatic lavender oil can affect neurotransmitter pathways like dopamine, serotonin hormone and endorphins to modulate labor-related symptoms such as alleviating tension, improving sleep and decreasing level of anxiety (Lamadah, 2016).

In addition, the massage is an ancient, effective, noninvasive technique for promoting relaxation and improving health and wellbeing during labor. The term "massage", probably derived from the Greek word "massein" (to knead) which uses body manipulation, alone or in combination with herbs, water, salts, and muds (Nori et al., 2023). Massage among the most effective alternative ways to minimize labor pain and raise pain thresholds. It works by using the palm of the hand to manipulate soft tissues, which alters neural activity at the spinal cord and subcortical nuclei that regulate mood and pain perception (ALSaedi & El- Sabagh, 2022; Suarez-Easton et al., 2023)

Moreover, acupressure is one of the main therapeutic remedies of traditional chinese medicine (TCM) that facilitates blood and chi circulation to lessen blockages and obstruction by promoting vasodilatation, decreasing noradrenaline and release adrenaline, increasing the secretion of oxytocin and endorphins to strengthen uterine contractions and shorten the time of labor (Karimi et al., 2020).

Acupressure is a non-invasive, low-cost effective technique to stimulate acupoints sites by applying steady, intense pressure with the palms and fingertips in which the Qi of viscera and meridians are manipulated to restore equilibrium between Yin and Yang and reestablish a state of optimal wellness and health (Khomsah et al., 2017). Sanyinjiao Point (SP6) is a crucial acu-point utilized during childbirth that regulates uterine function, stimulates the hypothalamus to produce oxytocin which balances energy and

lessens labor discomfort. It represents the point of conjunction at which pathways of the liver, spleen, and kidney channels are joining. It is located four fingers above the inner ankle of the feet behind the posterior edge of the tibia (Katoch et al., 2018).

Currently, proper management of pain is a critical component of the nursing care strategies for childbearing women. Therefore, the current study was carried out to assess the effect of aromatherapy back massage versus acupressure San Yin Jiao (SP6) on labor pain intensity and duration among primigravidas.

Aim of the study

The present study aims to:

Determine the effect of aromatherapy back massage versus acupressure San Yin Jiao (SP6) on labor pain intensity and duration among primigravidas

Research hypothesis:

- Primigravidas who receive aromatherapy back massage with lavender oil during active and transitional phases of first stage of labor report less pain intensity than those who receive acupressure San Yin Jiao (SP6)
- Primigravidas who receive aromatherapy back massage with lavender oil during active and transitional phases of first stage of labor exhibit shorter labor duration than those who receive acupressure San Yin Jiao (SP6)

Materials and Method

Materials:

Research design:

Quasi-experimental research design was utilized in this study.

Setting:

This study was carried out at the labor and delivery unit at El Shatby

Maternity University Hospital in Alexandria

Subjects:

The study subjects were selected through the non-probability sampling technique. Convenience sample of 80 laboring women

The subjects were selected according to the following inclusion criteria:

- Primigravida
- Full term (37 to 42 weeks of gestation)
- Age between 20 – 35 years old.
- Having an indication for vaginal birth
- Have single viable fetus with cephalic presentation
- Less than 4-cm cervical dilatation
- Free from any medical or obstetric risk factor and/or condition
- Did not receive any pharmacological pain relief measures.
- Willing to participate in the study.
- Did not have allergic reactions to oil

The subjects were divided randomly into two equal groups, aromatherapy back massage group (40) and acupressure group (40).

Tools of data collection

Three tools were used for data collection

Tool I: Tool (I): An interviewing Assessment Sheet

This tool was developed by the researcher and included two different parts:

Part I: Socio-demographic characteristics, including: age, level of education and occupation.

Part II: present complains, labor pain profile: site and character of pain, uterine contractions (frequency, duration and intensity of uterine contractions) and cervical dilatation.

Tool II: Visual analog scale (VAS)

The tool was adapted and utilized by the researcher, developed by Melzac and Katz (1994). It is a self-report tool consisting of a vertical line that was designed to measure a patient's pain subjectively. A 10-point numerical scale is used to indicate the intensity of pain, with zero denoting no discomfort and 10 denoting the highest level of pain. In between these two opposite ends, words as mild, moderate, severe are attributed to each 3 cm distance, respectively. Women were instructed to mark on the line at the point representing severity of pain (Alghadir et al., 2018; Kersten et al., 2014).

The total average score ranges from 0-10 as follows:

- No pain (0)
- Mild pain (1-3)
- Moderate pain (4-6)
- Severe pain (7-9)
- Unbearable pain (10)

Tool III: A modified version of Chamber Price pain rating scale (CPPRS)

The researcher adopted and utilized this tool. It assesses level of severity of pain through looking at observable behaviors. It composed of (12) items divided into four categories: facial expression, verbalization, postures and gross motor activity. The researcher elicited one of a three alternative options for each of these four major behavioral categories. For facial expression, the choices were no frowning (0), some frowning (1), and constant frowning or grimacing (2). For verbalization varied between normal or no sound (0), groans/ moans (1) and cries/sobs (2). For posture, the choice was between very relaxed (0), guarded body posture (1) and tense body posture (2). Finally women's gross motor activity, the choice was between quite (0), slightly restless (1), and very restless (2) (McGuire, 1984).

The total score is between 0-8. This score was translated to the corresponding pain intensity as follows:

- No pain (0)
- Mild pain (1-2)
- Moderate pain (3-4)
- Severe pain (5-6)
- Unbearable pain (7-8)

Method:

1. An approval from Research Ethics Committee, Faculty of Nursing-Alexandria University, was obtained.
2. The researcher received an accredited certificate after participating in a massage and acupressure training program at the Arab African Union, Supreme Body for Complementary Medicine affiliated to the Ministry of Culture and Investment.
3. An official letter from the vice-dean of the graduate studies Faculty of Nursing, Alexandria University was submitted to the responsible authorities of the study setting to obtain their permission to conduct the study and collect data after explanation of the research purpose.

Tools development phase

- Tool (I) was developed and used by the researcher after extensive review of relevant literature and Tools II was translated from English to Arabic language.
- Tool (I) was tested for content validity by juries of 5 experts in the field of obstetric and gynecologic nursing and their suggestions and recommendations were taken into consideration
- The reliability of tools (II&III) was tested using internal consistency by using Cronbach's alpha test (0.882, 0.778) respectively and the results were highly reliable

A pilot study was carried out on 8 parturients women (10% of sample) (excluded from the main study sample) from the previously mentioned setting to

assure feasibility of the study, clarity and applicability of the tools.

Collection of data:

Assessment phase

- The researcher attended the labor ward and introduces herself to the laboring women.
- Each subject was individually interviewed by the researcher after explaining the purpose of the study. An informed written consent was obtained.
- The researcher started first by aromatherapy back massage group (n=40) and then the second group (n=40) who received acupressure San Yin Jiao (sp6).
- Every laboring woman in both groups was personally interviewed during the latent phase (1-3cm dilatation) in order to obtain socio-demographic and clinical data using (tool I).
- The Lavender oil was prepared by professor of Plant Ecology, Botany and Microbiology department, Consultant expert in the field of medicinal plants, who added 2.5% of lavender oil to 97.5% of carrier oil (almond oil).
- Severity of labor pain and behavioral symptoms associated with labor pain were measured for both groups before intervention using tool II(VAS) and III(A modified version of chamber price pain rating scale(CPPRS))

Implementation phase

For aromatherapy back massage group:

The researcher washed her hands, met every woman individually, instructed the women to assume lateral position and encourage her to relax and take deep breathing from nose and exhale slowly through mouth.

A 30-minute back massage with 2.5 percent dilution: 15 drops of Lavender oil per 6 teaspoons almond oil as a carrier oil was applied to women during the active phase (cervical dilatation of 4–7 cm), and

transitional phase (cervical dilatation of 8–10 cm)

A rhythmic massage was done gently with palms of hand in gentle circular motion, medium pushing and mode to all women for 15 minutes massage during each phase.

For acupressure group:

A 30-minute acupressure session using acupressure bands on the San Yin Jiao (SP6) acupressure point was administered to women during the active and transitional phases (15 minutes acupressure during each phase). The SP6 point was located 3 kun (approximately 4 cm) above the inner malleolus, four fingers are placed above the inner ankle of the feet behind the posterior edge of the tibia

The researchers asked women to assume any comfortable position. The acupressure band was an elastic band with a small plastic button used for applying pressure which was adjustable to the size of the body area targeted for pressure application. This protruding plastic button was positioned on the SP6 point.

After the procedures, the researcher assessed the women to assume any comfortable position.

Evaluation phases

The researcher evaluated severity of labor pain and behavioral symptoms associated with labor pain for both groups after first and second intervention during the active and transitional phases using tool II(VAS) and III(A modified version of chamber price pain rating scale(CPPRS))

In addition, the duration of the first (active and transitional phase) and second stages of labor were recorded among the two groups. The duration of the first labor stage was calculated as the period from 4 cm cervical dilation to full cervical dilation. The duration of the second stage was calculated from full dilation to the time of birth.

Finally, comparison between the two groups was made to determine which intervention induced less labor pain intensity and duration during the active and transitional phase of the first stage of labor than the other.

Statistical analysis:

Statistical analysis was done by the researcher after collection of data by using statistical package for social science (SPSS) version 16 program. A descriptive and analytical statistics were used such as a percentages, means and standard deviations. Chi-square-test, Fisher Exact test, Friedman test and One –Way ANOVA test at 0.05 levels to find out the statistical significance difference of the result.

Ethical considerations:

For each recruited subject, the following issues were considered:

1. Written informed consent was obtained from women before data collection and after explanation the aim of study.
2. Privacy of the women was asserted.
3. confidentiality of the collected information was maintained
4. Every participant was informed that her participation in the study was voluntary and she has right to withdraw from the study at any time

Results:

Table (I) illustrates distribution of the study subjects according to their socio-demographic characteristics. The mean age of aromatherapy back massage and acupressure group was (24.03±5.14) & (22.03±5.67) respectively.

No statistically significant difference was detected among the two groups in relation to their socio-demographic characteristics where $P > 0.05\%$

Figure (1) shows the character of labor pain among the participants. It was observed that slightly less than two-thirds (65.0%) of aromatherapy back massage

group reported their pain as cramping, while 35.0% described their pain as shooting pain compared to 67.5% and 32.5.0% respectively among acupressure group

Table (II) illustrates percent distribution of the study subjects according to their progress of labor. In relation to the number of uterine contractions, it was found that, more than three fifths (62.5%) of aromatherapy back massage group had two contractions per ten-minutes compared to three-quarters (75.0%) of acupressure group. The mean duration of uterine contractions of aromatherapy back massage and acupressure groups was 49.58±4.36 seconds and 49.07±4.51 seconds respectively.

However, the mean interval between contractions in aromatherapy back massage group was 3.43±0.96 minutes compared to 3.60±0.93 minutes in acupressure group.

Regarding condition of membrane, intact membrane was evident among one half (50.0%) of aromatherapy back massage group compared to 62.5.0% of acupressure group.

Presence of show was reported by three- fifths (60.0%) of aromatherapy back massage group compared to three -quarters (75.0%) of acupressure group.

No statistically significant difference was found between the two groups in relation to progress of labor.

Table (III) As shown in table (III), unbearable pain decreased among aromatherapy back massage group from about one-third (32.5%) before intervention to 15% after first intervention and second intervention. Moreover, the unbearable pain decreased from 37.5% before intervention to one-quarter (25%) after first intervention and less than one –quarter (20%) after second intervention among acupressure group.

There was statistically significant difference between pre and post intervention among each group as measured by VAS scale where $p < 0.001$ and $p = 0.040$ respectively. In addition, there were statistically significant difference between both groups after second post intervention where $p = 0.029$

Table (IV) shows percent distribution of the study subjects according to their total behavioral response to labor pain

Regarding total behavioral response to labor pain among aromatherapy back massage after intervention unbearable pain profoundly, decreased from 35.0% before intervention to 10.0% after first and second intervention respectively.

There was statistically significant difference between pre and post intervention among each group in relation to total behavioral pain response as measured by (CPPRS) where $p < 0.001$ and < 0.007 respectively. In addition, there were statistically significant difference among the two groups after post first and second intervention in relation to total behavioral pain response as measured by (CPPRS) where $p = 0.023$ and $= 0.026$ respectively

Table (V): As illustrated in table (V), mean duration of first stage was 4.28 ± 0.75 hours for aromatherapy back massage group and 5.50 ± 0.88 hours for acupressure group. A statistically significant difference was found ($P < 0.001$). During second stage of labor, the mean duration was 17.50 ± 4.08 minutes for aromatherapy back massage group compared to 21.13 ± 3.61 minutes for acupressure group and a highly statistical significant difference was found ($P < 0.001$).

Discussion

Pain throughout childbirth can be managed using a variety of non-pharmacological techniques. Currently, Aromatherapy is an alternative way for minimizing discomfort during labor. The present study findings validated the following hypothesis: during the active

and transitional phases of the first stage of labor, primigravidas who received aromatherapy back massage with lavender oil reported lower pain intensity and reduced labor durations than those who received acupressure San Yin Jiao (SP6).

Based on the VAS scale, there was a statistically significant difference between each group's pre and post intervention. Furthermore, following the second post-intervention period, there was a statistically significant difference between the two groups. The study's findings provide evidence in favor of the beneficial effects of aromatherapy back massage on labor pain management.

This finding shows some resemblance to the findings from various earlier researches. In Turkey, a study was conducted by Karatopuk and Yarıcı (2023) titled "Determining the effect of inhalation and lavender essential oil massage therapy on the severity of perceived labor pain in primiparous women". The researcher noticed that applying aromatherapy massage with lavender oil lowered severity of labor pain among study group's using VAS ($P < 0.05$).

Another research was carried out by Hu et al. (2021) whose study entitled "efficacy and safety of non-pharmacological interventions for labor pain management". They analyzed 43 studies which showed that all alternative therapies treatment particularly acupressure and aromatherapy, had positive effects on reducing degree of labor pain compared to placebo control group of low-risk groups pregnant women. However, in contrast to the finding of the present study, this study additionally found that acupressure was the most efficient method of reducing labor pain aside from aromatherapy. **Moreover**, a study was conducted by Tabatabaeichehr and Mortazavi (2020) in Iran, entitled "The Effect of aromatherapy in the management of labor pain and anxiety, compared to

standard labor care. The researcher found that lavender oil massage was a more affordable way to reduce labor discomfort and duration during the first and second stages of labor..

Another study was conducted by Janula and Mahipal (2015) in India entitled "" Effect of aromatherapy and biofeedback in promotion of labor outcome during childbirth among primigravidas. They found that lavender massage reduced the pain during first stage of labor and a wide range of worst labor outcomes than biofeedback therapy. This could be because lavender oil contains linalool, which has sedative and local anesthetic properties. This ingredient may enhance the release of endorphin, which lessens the sense of pain

Furthermore, the current study's findings showed that the average mean duration of the first stage differed statistically significantly between the aromatherapy back massage group and the acupressure group. The current findings relatively correspond with the findings of *some researches*: A study was carried by Abbaspoor and Shahri (2021) in India entitled "Lavender oil aromatherapy massage in decrease labor pain and labor duration". The researcher concluded that applying lavender oil massage had a calming effect on the skin and stimulated the endings of nerves thereby reduce pain and duration of the first and second stage of labor.

In addition, study was carried out by Karo (2017) in Indonesia, entitled "lavender (lavandula angustifolia) aromatherapy as an alternative treatment in reducing pain in primiparous mothers in the active first stage of labor". They revealed that aromatherapy massages with lavender oil significantly lessened the severity of discomfort experienced during labor VAS ($P < 0.05$) and shortened the total duration of the three stages of labor

Moreover, study done Lamadah (2016) in Egypt, entitled "The Effect of aromatherapy massage using Lavender oil on the level of pain and anxiety during labor among primigravidas. The researchers discovered that the durations of the latent, active, and transitional phases of labor were found to be significantly reduced by aromatherapy massage with lavender oil.

Conclusion: it can be concluded that:

Primigravida who received aromatherapy back massages with aromatic lavender oil throughout both the active and transitional phase of the first stage of labor had shorter labor durations and less intense pain than those who received acupressure on San Yin Jiao (SP6). The application of aromatherapy back massage therapy has a significant effect on reducing severity of pain and shorten total labor duration among primigravida.

Recommendations:

Concerning the results of the present study, the following recommendations are included:

- Encourage that aromatherapy back massage as an alternative therapy is utilized in maternity hospitals.
- Participate in ongoing educational classes for nurses working in maternity units regarding the applicability and importance of non-pharmacological techniques, particularly using aromatherapy back massage for the management of labor pain.
- Nursing curricula should incorporate topics regarding the use of non-pharmacological pain relieve methods especially aromatherapy back massage in the management of discomfort during labor.

Further researches:

- a) A comparative research might be conducted to examine the efficacy of

aromatherapy back massage compared to other essential oils on decreasing labor pain and duration.

- b) Replication of the current study throughout multiple Egyptian cultures such as in rural regions or Upper Egypt at different circumstances.

Table (I): Distribution of the study subjects according to their socio-demographic characteristics.

Socio-demographic characteristics		Aromatherapy back massage group (n =40)		Acupressure group (n =40)		Test of Significance (p-value)
		No.	%	No.	%	
Age	20–	22	55.0	28	70.0	$\chi^2=4.090$ (^{MC} p=0.262)
	25–	13	32.5	9	22.5	
	30+	5	12.5	3	7.5	
Min. – Max. Mean \pm SD.		15.0 – 35.0 24.03 \pm 5.14		15.0 – 33.0 22.03 \pm 5.67		t= 1.653 (p=0.102)
Level of education	Illiterate /read and write	16	40.0	13	32.5	$\chi^2=3.153$ (^{MC} p=0.394)
	Primary and Preparatory	16	40.0	14	35.0	
	Secondary or diploma	4	10.0	10	25.0	
	University or higher	4	10.0	3	7.5	
Occupation	Housewife	29	72.5	24	60.0	$\chi^2=1.398$ (0.237)
	Working	11	27.5	16	40.0	
Residence	Urban	18	45.0	17	42.5	$\chi^2=0.051$ (0.822)
	Rural	22	55.0	23	57.5	

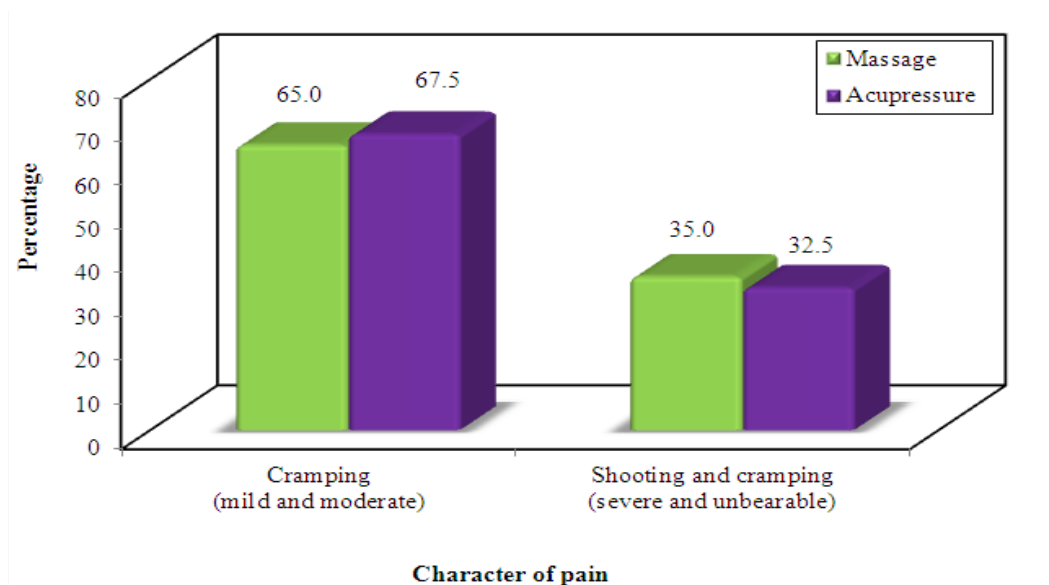


Figure (1): Distribution of the study subjects according to their current labor pain profile

Table (II): Distribution of the study subjects according to their progress of labor

Assessment of current labor		Aromatherapy back massage group (n =40)		Acupressure group (n =40)		Test of Significance (p-value)
		No.	%	No.	%	
Number of contractions/ 10 min	2/10 min	25	62.5	30	75.0	$\chi^2=1.455$ (p=0.228)
	3/10 min	15	37.5	10	25.0	
Duration of contractions (seconds)	Min. – Max.	41.0 – 59.0		42.0 – 60.0		t=0.504 (0.616)
	Mean ± SD.	49.58 ± 4.36		49.07 ± 4.51		
Interval (min)	Min. – Max.	2.0 – 5.0		3.0 – 5.0		U=718.0 (0.329)
	Mean ± SD.	3.43 ± 0.96		3.60 ± 0.93		
Intensity	Mild	26	65.0	27	67.5	$\chi^2=0.243$ (1.000)
	Moderate	10	25.0	10	25.0	
	Severe	4	10.0	3	7.5	
Membrane	Intact	20	50.0	15	62.5	$\chi^2=1.270$ (0.260)
	Rupture	20	50.0	25	37.5	
Show	Present	24	60.0	30	75.0	$\chi^2=2.051$ (0.152)
	Absent	16	40.0	10	25.0	

Table (III): Distribution of the study subjects according to their labor pain intensity.

Visual analog scale (VAS)	Aromatherapy back massage group (n =40)						Acupressure group (n =40)						χ^2 (p ₁)	χ^2 (p ₂)	χ^2 (p ₃)
	Pre		Post1		Post2		Pre		Post1		Post2				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
VAS															
Mild pain	5	12.5	9	22.5	13	32.5	1	2.5	2	5.0	5	12.5	3.133 (^{MC} p=0.394)	5.978 (0.113)	9.002 (0.029*)
Moderate pain	9	22.5	15	37.5	15	37.5	12	30.0	19	47.5	11	27.5			
Severe pain	13	32.5	10	25.0	6	15.0	12	30.0	9	22.5	16	40.0			
Unbearable pain	13	32.5	6	15.0	6	15.0	15	37.5	10	25.0	8	20.0			
Fr (p₀)	24.065(<0.001*)						6.438 (0.040*)								

Table (IV): Distribution of study subjects according to their total behavioral pain response

Total behavioral pain response	Aromatherapy back massage group (n =40)						Acupressure group (n =40)						χ^2 (p ₁)	χ^2 (p ₂)	χ^2 (p ₃)
	Pre		Post1		Post2		Pre		Post1		Post2				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Total Score															
Mild pain	5	12.5	9	22.5	13	32.5	2	5.0	3	7.5	3	7.5	2.016 (^{MC} p=0.614)	9.552 (0.023*)	9.250 (0.026*)
Moderate pain	8	20.0	20	50.0	13	32.5	11	27.5	13	32.5	14	35.0			
Severe pain	13	32.5	7	17.5	10	25.0	11	27.5	13	32.5	13	32.5			
Unbearable pain	14	35.0	4	10.0	4	10.0	16	40.0	11	27.5	10	25.0			
Fr (p₀)	37.565* (<0.001*)						9.810* (0.007*)								

Table (V): Distribution of the study subjects according to the duration of first and second stage of labor

Duration		Aromatherapy back massage (n=40)	Acupressure (n=40)	χ^2 (p-value)
1 st stage (hours)	Mean ± SD.	4.28 ± 0.75	5.50 ± 0.88	t=6.711* P < 0.001*
2 nd stage (min)	Mean ± SD.	17.50 ± 4.08	21.13 ± 3.61	t=4.207* P < 0.001*

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