



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 5.2  
IJAR 2018; 4(10): 266-271  
www.allresearchjournal.com  
Received: 26-08-2018  
Accepted: 27-09-2018

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## Effectiveness of Lavender oil massage vs rose oil massage on labour pain perception among parturient women during first stage of labour at MGMCRI, Puducherry

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### Abstract

Labour pain is one of the severest pain. Controlling labour pain is a major concern of maternity care. Nowadays, interest in non-pharmacological pain relief methods has been increased because of their lower side effects. Pain in labour is nearly universal experience for the childbearing women. Lavender oil massage and rose oil massage helps to convey care, support and comfort during labour without any side effects. Hence, this study proposes to evaluate the effectiveness of lavender oil massage and rose oil massage in reducing the labour pain perception in women during first stage of labour.

**Aim:** This study was aimed to evaluate the effectiveness of Lavender oil massage Vs Rose oil massage on labour pain perception among parturient women during first stage of labour at MGMCRI, Puducherry”

**Methodology:** A true experimental design was adopted for the study. The population of the study was only parturient women during first stage of labour. 60 samples were selected by Simple Random sampling technique with 30 in each group; Group I received lavender oil massage and Group II received rose oil massage. Pre-test was done using structured questionnaire and assessment of level of pain perception by Numerical Pain Rating Scale. After lavender oil massage for Group I and rose oil massage for Group II, the level of pain perception was assessed using the Numerical Pain Rating Scale.

**Results:** The present study results was shows that all parturient women reported severe pain on Numerical Pain Rating Scale before intervention. Lavender oil massage and rose oil massage were effective on labour pain perception in both Group I and Group II. While comparing the effectiveness of lavender oil massage and rose oil massage, it shows that, according to Mann-Whitney test the pre-test value was -0.889 and ‘p’ value was 0.374, whereas the post-test value was -2.199 and ‘p’ value was 0.028\*. While comparing Group I and Group II, the obtained Wilcoxon value was -4.831 and -4.674, respectively. It was statistically significant at  $p < 0.001$ \*. It indicates that there was variation in the level of pain reduction in Group I than Group II.

**Keywords:** Effectiveness, lavender oil, Rose oil, Labour Pain, Parturient women

### Introduction

Natural birth is a beautiful experience with many safe options and benefits. Every women dream of comfort as an interesting concept in the context of the pain of childbirth. The feeling of comfort is the expression of having impending needs or desires in three domains, body, mind and spirit. It provides a feeling of relief, ease, security, wellbeing, hope and expectation [1]. Human body bears only up to 45 Del (unit) of pain. But at the time of giving birth, a women feels up to 57 Del of pain [2]. Compared to all the non-pharmacological methods of pain relief during labour, back massage has many important benefits for the mother [3].

Massage can increase the production of endogenous endorphins that bind to receptors in the brain for pain relief. Massage (light rhythm stroking of the abdomen and back) can provide pain relief and reduce the need for narcotic analgesia or anaesthesia by naturally creating competing impulses in the central nervous system that can prevent the painful stimuli of labour contractions from reaching the brain [4].

**Need for the study**

Worldwide, an estimated 140 million births take place every year. Most of these occur without complications for women and their babies. Yet, over the past 20 years, practitioners have increased the use of interventions that were previously only used to avoid risks or treat complications, such as oxytocin infusion to speed up labour or caesarean sections [5].

Many women feel contractions strongly in their lower back, so lower back massage may help. Many midwives routinely use gentle back massage as part of their practice. Women may vary in their response to massage. Some prefer to be massaged during contractions, which helps to ‘spread the pain’ while some prefer to be massaged after each contraction to relax and soothe tired muscles [6].

Two worldwide systematic reviews were identified which included evaluation of the use of massage or therapeutic touch for pain relief during labour. The two randomized controlled trials reviewed were ( $n = 24$  and  $n = 60$ ) conducted in USA and Taiwan, respectively. A prospective cohort study, conducted in the USA, examined the effect of therapeutic touch during labour ( $n = 90$ ). Women in the experimental group received touch from the midwife for a period of 5–10 seconds after each verbal expression of anxiety. The study was carried for 30 minutes intervention period at the end of the first stage of labour (8–10 cm dilatation). The control group received ‘usual care’. Despite the seemingly short duration of the intervention, maternal anxiety were found to be reduced significantly ( $P < 0.05$ ) in the experimental group, compared with the control group [7].

**Problem Statement**

An experimental study to evaluate the effectiveness of lavender oil massage Vs rose oil massage on labour pain perception among parturient women during first stage of labour at MGMCRI, Puducherry.

**Objectives**

- To assess the level of pain perception in first stage of labour among parturient women during pre-test.
- To evaluate the effectiveness of lavender oil massage and rose oil massage on labour pain perception in first stage of labour during pre-test and post-test.
- To compare the effectiveness of lavender oil massage and rose oil massage on labour pain perception.
- To find out the association between the level of pain perception and selected demographic variables of parturient women in first stage of labour.

**Hypotheses**

**H<sub>1</sub>:** Level of pain perception during first stage of labour among parturient women differ before and after lavender oil massage and rose oil massage.

**H<sub>2</sub>:** The effect of lavender oil massage varies from the effect of rose oil massage on labour pain perception among parturient mother.

**H<sub>3</sub>:** Association exist between the Level of pain perception during first stage of labour with selected demographic variables.

**Methodology**

A true experimental design was adopted for the study. The population of the study was only parturient women during

First stage of labour. 60 samples were selected by Simple Random sampling technique with 30 in each group; Group I received lavender oil massage and Group II received rose oil massage. Pre-test was done using structured questionnaire and assessment of level of pain perception by Numerical Pain Rating Scale. After lavender oil massage for Group I and rose oil massage for Group II, the level of pain perception was assessed using the Numerical Pain Rating Scale.

**Criteria for sample selection**

**Inclusion criteria**

- Parturient women during first stage of labour with 6 cm cervical dilatation.
- Parturient women who have completed 37 weeks of gestation.
- Parturient women with spontaneous onset of labour.

**Exclusion Criteria**

- Pregnant women with medical and obstetrical complication.
- Pregnant women who were admitted for elective LSCS.
- Mothers with skin allergies.

**Selection and description of the tool**

It was emphasized that the instrument selected in the research is as far as possible vehicle that would be best to obtain for drawing conclusion, pertinent to the study.

**Development of the instrument**

The tool was developed based on literature review and opinion from experts in the field of obstetrics and gynaecology. The tool consists of 2 parts.

**Part A: Demographic variables**

Demographic variables include age, religion, educational status, occupation, income, type of family, area of residency, sources of information, etc.

**Part B: Numerical pain rating scale**

A numerical pain scale is used to assess the level of pain perception during first stage of labour.

**Numerical pain rating scale**

Score	Response
0	No Pain
1–3	Mild Pain
4–6	Moderate Pain
7–10	Severe Pain

**Validity and reliability**

Reliability as “the consistency with which an instrument measures the attribute”. An instrument is said to be reliable if its measures accurately reflect the true score of the attribute under investigation. Reliability coefficients higher than 0.70 are often considered satisfactory, but coefficients greater than 0.80 are far preferable. Polit *et al.* (2007)

**Reliability of the tool**

The researcher used to test retest method (Karl Pearson Reliability Formula) to assess the reliability of the tool. The overall reliability score obtained was  $r = 0.87$ .

**Ethical consideration**

Ethical considerations are vital to any research study because of the influence on the researcher’s ability to acquire and retain participants.

The proposed study was conducted after the approval of the Institutional Human Ethical Committee. Permission was obtained from the concerned authorities. Informed consent (Assent) from the parturient women and their relatives were obtained. Subjects had given the right to withdraw from the study at any time they want and assurance was given to the study subjects and relatives that, the privacy and anonymity of the individual will be maintained confidentially.

**Procedure of lavender and rose oil massage**

**Group I (Lavender Oil Massage)**

1. When mother has 6 cm cervical dilatation, assess the level of labour pain perception using Numerical Pain Rating Scale. After the assessment of level of labour pain perception, massage was started.
2. A few drops of lavender oil was applied in the lower portion of back with the palm of the hands and moved the hands in a circular direction for 15–20 min at 1 hour interval for 2 times in the Group I.
3. After that the pain was assessed using Numerical Pain Rating Scale.

**Group II (Rose oil massage)**

1. When mother has 6 cm cervical dilatation, assess the level of labour pain perception using Numerical Pain Rating Scale. After the assessment of level of labour pain perception, massage was started.
2. A few drops of rose oil was applied in the lower portion of back with the palm of the hands and moved the hands in a circular direction for 15–20 min at 1 hour interval for 2 times in the Group II.
3. After that the pain was assessed using Numerical Pain Rating Scale.

**Plan for data analysis**

The Researcher used Descriptive statistics which include

Frequency, percentage and mean, median and standard deviation to assess the demographic variables of parturient women with Labour Pain. Inferential statistics such as Wilcoxon Signed Rank test and Mann-Whitney test was used to compare the effectiveness of pre and post-test assessment. Chi-square test was done to find out the association between the Labour pain and demographic variables.

**Major study findings**

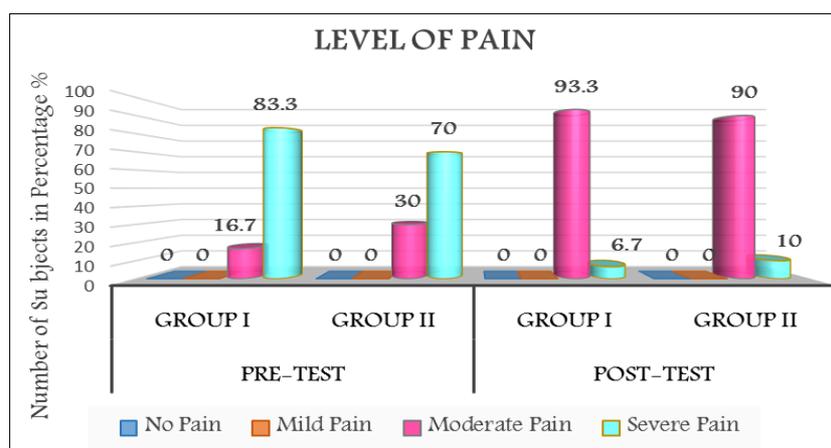
**Section – A**

**Distribution of demographic variables of primigravid women with labour pain**

With regard to age, majority of samples 15 (25%) in Group I, 7 (11.67%) in Group II belongs to the age group of 21–25 years. Regarding educational qualification, most of the samples 13 (21.67%) in Group I, 9 (15%) in Group II studied up to higher secondary. In regard of occupation, majority of samples 24 (40 %) in Group I, 17 (28.33%) in Group II belongs to homemaker. Regarding religion, majority of samples 21 (35 %) in Group I, 23 (38.33%) in Group II belongs to Hindu. Regarding residential area, majority of samples 21 (35%) in Group I, 20 (33.33%) in Group II belongs to rural area. In regard of gestational age, majority of samples 16 (26.66%) in Group I, 15 (25%) in Group II belongs to 39–40 weeks of gestation. Regarding duration of hospitalization, majority of samples 16 (26.67%) in Group I, 15 (25%) in Group II were admitted on the day of delivery. Regarding source of information, majority of the samples 20 (33.33%) in Group I, 20 (33.33%) in Group II got information by their family members and friends. Regarding fetal heart rate, majority of samples 17 (28.33%) in Group I, 12 (20%) in Group II have fetal heart rate between 110 and 160 beats/min.

**Section- B**

Assessment of level of pain perception during labour experienced by parturient women before and after lavender oil massage and rose oil massage



**Fig 1:** Percentage Distribution of Level of Pain Perception in First Stage of Labour among parturient women in Group I and Group II during Pre Test and Post Test

Figure 1 showed that the assessment of level of labour pain perception among parturient women during first stage of labour. In pre-test out of 30 subjects in Group I, none of them have no pain and mild pain, 5 (16.7%) rated pain score

As moderate pain, 25 (83.3%) rated pain score as severe pain and in pre-test, out of 30 subjects in Group II none of them have no pain and mild pain, 9 (30%) rated pain score as moderate pain and 21 (70%) rated pain score as severe pain.

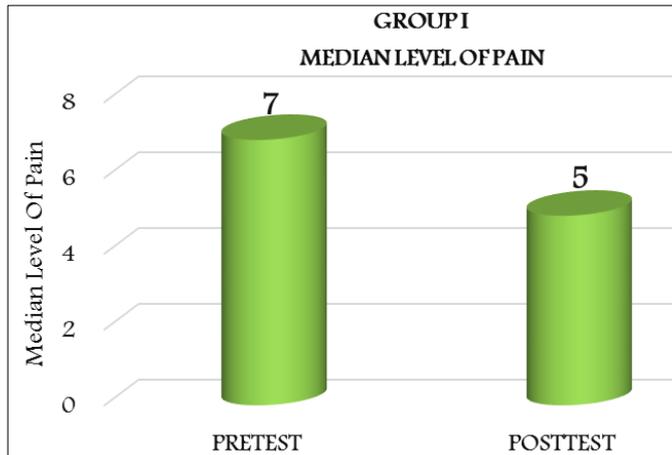
**Section- C**

Effectiveness of lavender oil massage and rose oil massage on level of labour pain perception among parturient women

**Table 1:** Comparison of Pre and Posttest Level of Labour Pain Perception among parturient women in Group I

Level Of Test	Mean Pain Level	Median	Standard Deviation	Wilcoxon Test	<i>p</i> value
Pre-test	7.2	7	0.805	-4.831	<0.001
Post-test	4.33	5	0.606		

Highly statistically significant at  $p < 0.001^*$



**Fig 2:** Comparison of Pre and Posttest Level of Labour Pain Perception among parturient women in Group I

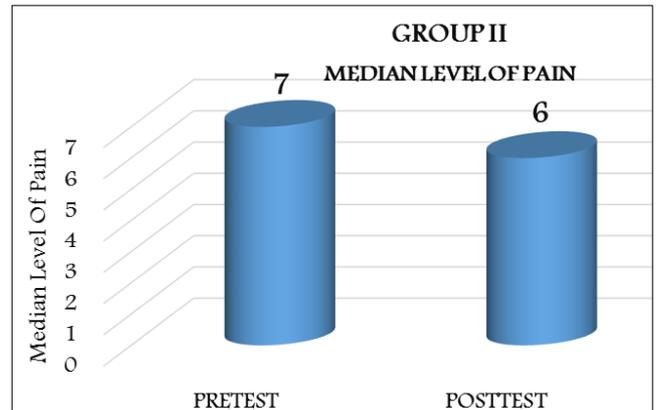
Table 1 and Figure 2 showed that in the Group I, the pre- and post-test median value was 7 and 5 respectively. The obtained Wilcoxon value was -4.831. It was highly statistically significant at  $p < 0.001$  level. There is significant difference between pre-test and post-test values

Of pain level in Group I. The result shows that lavender oil massage was effective in reduction of labour pain perception among parturient women in first stage of labour.

**Table 2:** Comparison of Pre and Posttest Level of Labour Pain Perception among parturient women in Group II

Level Of Test	Mean Pain Level	Median	Standard Deviation	Wilcoxon Test	<i>p</i> value
Pre-test	7.6	7	0.947	-4.674	<0.001
Post-test	5.67	6	0.661		

Highly statistically significant at  $p < 0.001^*$



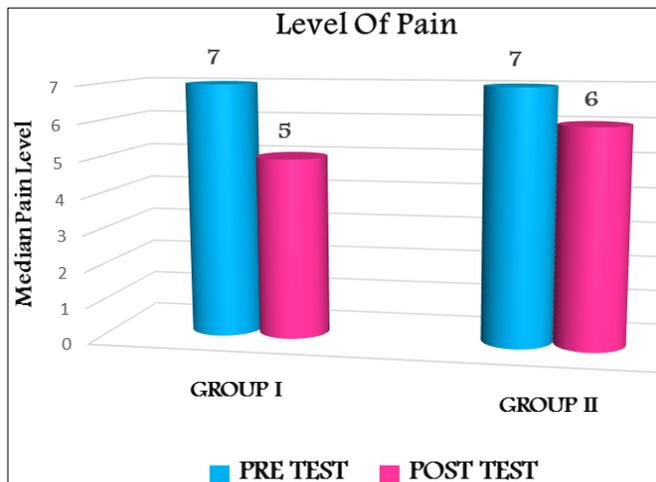
**Fig 3** Comparison of Pre and Posttest Level of Labour Pain Perception among parturient women in Group II

Table 2 and Figure 3 showed in the Group II, the pre- and post-test median value was 7 and 6 respectively. The obtained Wilcoxon value was -4.674. It was highly statistically significant at  $p < 0.001$  level. There is significant difference between pre-test and post-test values of pain level in Group II. The result shows that rose oil massage was effective in reduction of labour pain perception among parturient women in first stage of labour.

**Table 3:** Comparison of Pre and Posttest Level of Labour Pain Perception among parturient women in Group I and Group II

Group	Pre-test			Post-test			Wilcoxon Test	<i>P</i> - value
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation		
Group I	7.2	7	0.805	4.33	5	0.606	-4.831	<0.001*
Group II	7.6	7	0.947	5.67	6	0.661	-4.674	<0.001*
Mann-Whitney t-test	-0.889			-2.199				
<i>p</i> -value	0.374			0.028*				

Highly statistically significant at  $p < 0.001^*$



**Fig 4:** Comparison of Pre and Posttest Level of Labour Pain Perception among parturient women in Group I and Group II

Table 3 and figure 4 showed that the Comparison of the effectiveness of lavender oil massage and rose oil massage on labour pain perception in first stage of labour reveals that the pre and post-test median values were 7 and 5 respectively. The pre and post-test median value was 7 and 6 respectively. While comparing pre-test and post-test, according to Mann-Whitney test the pretest value was -0.889 and '*p*' value was 0.374, the posttest value was -2.199 and '*p*' value was 0.028\*. While comparing Group I and Group II, the obtained Wilcoxon value was -4.831 and -4.674. It was highly statistically significant at  $< 0.001^*$ . It indicates that there was variation in the level of pain perception in Group I than Group II. It shows that lavender oil massage reduced the severe pain level to moderate level.

**Section D**

Association of the level of pain perception in first stage of labour with selected demographic variables.

Assessment of association between the levels of labour pain perception with selected demographic variables of parturient women reveals that there is no significant association between the level of pain with demographic variables like age, religion, educational status, occupation, gestational age, etc.

### Discussion

Assess the level of labour pain perception among parturient women in first stage of labour during pre-test.

The above study finding was supported by Rudneide Barreto *et al.* (2015) <sup>[8]</sup> who conducted a randomized trial on massage that reduced severity of pain during labour among 46 women in Australia. Pain severity was measured by Visual Analog Scale. Results concluded that the pain severity was 52 mm in the experimental group and 72 mm in control group. Massage reduced the severity of pain in labour <sup>[8]</sup>.

Evaluate the effectiveness of lavender oil massage Vs rose oil massage on labour pain perception in first stage of labour during post-test.

The above study finding was supported by Sahar Mansour Lamadah and Ibtesam Nomani (2016) who conducted a study on the effect of aromatherapy massage using lavender oil on the level of pain and anxiety. The mean anxiety score before intervention was 55.47 and 50.40 among the aromatherapy and control group, respectively. The study concluded that aromatherapy massage with lavender oil can reduce pain and anxiety during labour <sup>[9]</sup>.

The above study finding was supported by Reeja Mariam Joseph and Philomena Fernandes (2015) who conducted a study to assess the effectiveness of rose oil massage on labour pain during first stage of labour among 40 primigravid women. A significant difference was found in the experimental group ( $t = 9.869, p < 0.05$ ). A significant difference was found between experimental group and control group, pretest ( $t = 0.36, p > 0.05$ ) and post-test ( $t = 11.75, p < 0.05$ ). In this study rose oil massage proved to reduce first stage labour pain <sup>[10]</sup>.

Compare the effectiveness of lavender oil massage vs. rose oil massage on labour pain in first stage of labour.

The above study finding was supported by Mahim Kamalifard *et al.* (2016) who conducted a randomized control trial on effectiveness of lavender and valerian aromatherapy on reduction of the active phase among 141 nulliparous women at IIT University, Rajasthan. Cases were randomly assigned to lavender and valerian aromatherapy group. Findings suggested that lavender aromatherapy was helpful in reduction of duration of labour ( $p < 0.001$ ) <sup>[11]</sup>.

Find out the association between the level of pain perception and selected demographic variables of parturient women in first stage of labour.

The above study finding was supported by Raju Janulal and Singh Mahipal (2015) who conducted a clinical trial in Sweden on nature of pain during labour. The data show that there was no association with the level of labour pain in relation with age, religion, education, occupation, monthly income, dietary pattern, residential area and sources of information <sup>[12]</sup>.

### Implications

The researcher has derived the following implications from the study which are of primary concern in the field of

nursing practice, nursing education, nursing administration and nursing research.

### Nursing Practice

The finding of the study clearly pointed out that lavender oil massage and rose oil massage are effective in reducing the intensity of pain during labour. The nurses have a very important role in managing the pain during labour.

This can be facilitated by motivating new staff nurses to learn lavender oil massage and rose oil massage techniques and encourage the utilization of this technique as an adjunct to the pharmacological therapy. The nurse must

- Assess the level of pain with the use of Numerical Pain Rating Scale.
- Understand the importance of lavender oil massage and rose oil massage as an adjunct to pharmacological therapy.
- Encourage the peer to use this technique among women in labour pain.

### Nursing Education

Evidence-based practice is essential in promoting quality care. The nurses must know the importance of managing the intensity of pain during labour. So the nurse educator should motivate the students to learn lavender oil massage and rose oil massage.

### Nurse Administration

Collaborate with hospital authorities in formulating policies to employ specially-qualified nurses in labour ward and periodically supervise their application of lavender oil and rose oil massage technique under hospital protocol. Lavender oil and rose oil massage are alternative management strategy in reducing the intensity of pain during labour which can be used in health care setting as cost effective method. Conduct an in-service education program on alternative therapies of managing pain during labour.

### Nursing Research

Encourage further research studies on the effectiveness of lavender oil and rose oil massage on various fields. On the evidence of the review, more research needs to be conducted and disseminate the findings through conferences, seminars, publications in professional, national and international journals.

### Limitations

- Study period was limited to 45 days.
- Sample size was limited to 30 samples in each group.
- Study population was limited to parturient women in first stage of labour.

### Recommendations

- The study can be replicated with a large sample for better generalization.
- More studies can be conducted on reduction of intensity of pain during labour using different complementary and alternative modalities to establish a rightful place in maternity care.
- Studies can be done to assess the knowledge, attitude and practice of nurse midwives on complementary and alternative therapies for labour pain management.

- Comparison can be done to evaluate the effectiveness of other nursing interventions such as back massage and support during labour.

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