IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 5, November 2025
Impact Factor: 7.67

A Quasi- Experimental Study to Assess the Effectiveness of Abdominal Effleurage on Labor Pain Level During First Stage of Labour among Low Risk Parturient Mothers at Apollo Hospital,Karur

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Abstract: *Childbirth is one of the greatest event in every women's life. Having fantasies about pregnancy and motherhood, when confronted with the reality, many of them doubted their ability to cope with this great event in their lives. Influenced by family, friends and relatives, they get prepared in many ways as they approach the experience of child birth.*

Labour pain is a complex, subjective, and multidimensional response related to the sensory stimuli generated during childbirth. Moreover, it can lead to negative consequences with exacerbating effects, as the reflex increases blood pressure, oxygen consumption, and release of catecholamines, which can adversely affect the uterine blood supply and progress of labor. However, pain management can minimize these adverse effects.

Management of labor pain encompasses pharmacological and non - pharmacological approaches to relive the pain that mothers may experience during labour. However, opioids and epidural analgesia are the most popular and effective pharmacological methods for pain relief during labor but are associated with increasing risk for neonatal respiratory depression. Nevertheless, the use of such analgesia may affect labour progress, and increase the risk of instrumental delivery and cesarean section.

Keywords: *Labour pain*

I. INTRODUCTION

Childbirth is one of the most important events in a woman's life. Many women imagine what pregnancy and motherhood will be like, but when labor begins, they may feel unsure or worried about how they will handle the pain. Family, friends, and relatives also influence how women prepare for this experience.

Labor pain is a complex and personal feeling. It can affect the body by raising blood pressure, increasing oxygen use, and releasing stress hormones. These changes can reduce blood flow to the uterus and slow down labor. Because of this, managing labor pain is very important.

There are two main ways to manage labor pain: **pharmacological** (using medicines) and **non-pharmacological** (using natural methods). Medicines like opioids and epidural anesthesia are effective but may cause problems such as slow labor, the need for assisted delivery, or breathing issues in the newborn.

Non-pharmacological methods, such as relaxation, massage, and other natural techniques, are becoming more popular. They are simple, have no major side effects, and increase the mother's comfort and satisfaction.

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In recent years, the use of complementary and alternative medicine—such as reflexology, acupuncture, acupressure, massage, and aromatherapy—has grown. Studies show that these methods, especially acupressure, aromatherapy, and massage therapy, can reduce labor pain safely for both mothers and babies. Because of this, they are good options for pain relief during childbirth

OBJECTIVES:

1. To assess the level of labor pain before abdominal effleurage during 1st stage of labour among among low risk parturient mother's.
2. To assess the level of labor pain after effleurage massage during 1st stage of labor among low risk parturient mother's.
3. To assess the effectiveness of abdominal effleurage on labor pain during first stage of labor among low risk parturient mother's between experimental and control group.
4. To find out the association between the level of labor pain after effleurage massage during 1st stage of labor among low risk parturient mother's with selected demographic variables

HYPOTHESES:

H1: There is a significant difference in level of pain after the abdominal effleurage during first stage of labour among low risk parturient mother's in experimental and control group.

H2: There is a significant association between the level of pain after the abdominal effleurage during first stage of labour among low risk parturient mother's with their selected demographic variables.

Research approach- A quantitative- evaluative approach was found to be appropriate and selected for the study.

Research design- Quasi experimental, non randomized control group design

VARIABLES:

Independent variables : Abdominal Effleurage

Dependent variables: Labour pain and maternal satisfaction

Demographic Variable Proforma: Demographic variable performa consists of age, educational status, type of family, area of living, religion, monthly income.

SETTING OF THE STUDY: The study conducted at labour ward of Apollo Hospital,Karur.

POPULATION: Population includes the low risk parturient mothers with first stage of labour pain in labour ward.

SAMPLE AND SAMPLE SIZE: The study samples are low risk parturient mothers who fulfilled the inclusion criteria The sample consist of 60 primi gravida mothers (30 control group and 30 experimental group)

SAMPLING TECHNIQUE: In this study non probability purposive sampling technique was used to select subjects according to the sample selection criteria.

SAMPLING CRITERIA-
INCLUSION CRITERIA:

The study includes mothers who: Low risk parturient mothers aged less than 35 year.
Pregnant mothers without any risk factors
Mother who can understand tamil

SAMPLING CRITERIA-
EXCLUSION CRITERIA:

The study includes mothers who Age below 20 years and above 35 years
Maternal and fetal complication during pregnancy
Mothers planned for any cesarean section.
Uncooperative mothers
Mother having specific musculo-skeletal problem

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Interpretation of the tool-

Section-1: Demographic variables

It consists of 2 parts

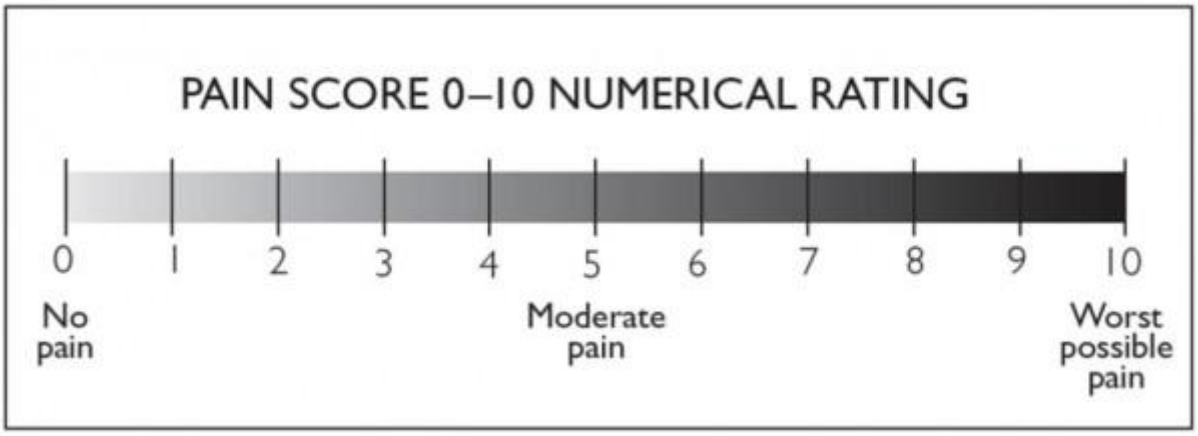
Part :I This part consisted of 7 items obtaining personal information about subjects regarding age, religion education, occupation, types of family, monthly income in rupees & area of living.

Part : II This part consisted of 4 items obtaining Current obstetrical history and delivery characteristics information about subjects such as gestational age in weeks, duration of first stage of labor, total number of vaginal examinations in first stage of labor, presence of support person during the first stage of labour. Demographic Variable Proforma: Demographic variable performa consists of age, educational status, type of family, type of work, area of residence, and previous information received regarding ambulatory nursing care. Obstetric Variable Proforma: The Obstetric variable proforma includes gestational age in weeks, height, and weight gain during pregnancy, number of antenatal visits till date, and complications during antenatal period,pain management during first stage of labour, type of labour, duration of first stage of labour, maternal and fetal complications during labour Pain Rating Scale: It consists of a scale ranging from

Section-1: Numerical pain rating scales

Section 2: Maternal satisfaction on abdominal effleurage

Section-1: Numerical pain rating scales



Section 2: Maternal satisfaction on abdominal effleurage

It consists of maternal satisfaction questionnaire to assess the maternal satisfactions after the abdominal effleurage. The questionnaires have 5 points such as strongly unsatisfied, unsatisfied, uncertain, satisfied, strongly satisfied.

PILOT STUDY

The pilot study was a trial run for the major study. The tools were used for the pilot study to test feasibility and practicability. The pilot study was conducted in the labour ward in Apollo hospital,karur for four days among 6 mothers. A formal permission was obtained from the chief doctor in Apollo hospital,karur. The mothers were selected for the pilot study were not included in the main study. The investigator introduced her to the mothers and established rapport with the mothers. Data pertaining to demographic variables were collected by interview method. The investigator selected the samples by using non probability purposive sampling technique. The investigator assessed the pre-test level of labour pain by using numerical categorical Pain assessment scale. The investigator gave abdominal effleurage to three mothers during the first stage of labour until 6cm cervical dilatation for duration of 10 minutes with the interval of 30 minutes. Control group were not received effleurage and counter massage. The investigator assessed

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the post test level of labour pain for both experimental and control group. The pilot study analysis revealed that there was a significant difference in labour pain between experimental and control group of low risk parturient mothers

1. Frequency and Percentage Distribution of Samples in experimental and control group according to demographic characteristics

A total of **60 low-risk parturient mothers** were included in the study: **30 in the control group** and **30 in the experimental group**. Their characteristics are summarized below

Table 1: Sociodemographic Characteristics of Low-Risk Parturient Mothers (N = 60)

Characteristics	Categories	Control Group (n = 30)	Experimental Group (n = 30)
1. Age	18–20 years	36.7%	30%
	21–25 years	40%	50%
	26–30 years	16.6%	13.3%
	31–35 years	5%	6.7%
Summary	Most mothers were aged 21–25 years	—	—
2. Religion	Hindu	46.7%	53.3%
	Muslim	30%	40%
	Christian	20%	6.7%
	Others	3.3%	0%
Summary	Majority were Hindu	—	—
3. Education Level	Cannot read/write	23.3%	16.7%
	Primary–Middle school	30%	40%
	High school	33.3%	33.3%
	Graduation & above	13.3%	10%
Summary	Most studied up to middle school or high school	—	—
4. Occupation	Housewife	60%	53.3%
	Working	40%	46.7%
Summary	Majority were housewives	—	—
5. Type of Family	Nuclear	43.3%	46.7%
	Joint	53.3%	43.3%
	Extended	3.3%	10%
	Broken	0%	0%
Summary	Mostly nuclear or joint families	—	—
6. Monthly Family Income	< Rs 5,000	13.3%	16.7%
	Rs 5,000–10,000	26.7%	40%
	Rs 10,001–15,000	33.3%	23.3%
	> Rs 15,000	26.7%	20%

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Characteristics	Categories	Control Group (n = 30)	Experimental Group (n = 30)
Summary	Most earned between Rs 5,000–15,000	—	—
7. Area of Living	Urban	30%	26.7%
	Semi-urban	16.7%	26.7%
	Rural	16.7%	23.3%
	Slum	31.7%	—

Area of Living

Mothers lived in different areas such as **urban, semi-urban, rural, and slum areas**

Objective 1

To assess the level of labor pain before abdominal effleurage during the first stage of labor among low-risk mothers in the experimental and control groups.

Table 2:Frequency and Percentage Distribution of Labor Pain Before Abdominal Effleurage During First Stage of Labor

N = 60 (Experimental = 30, Control = 30)

Level of Pain	Experimental Group(n = 30)	%	Control Group(n = 30)	%
No Pain	0	0.0%	0	0.0%
Mild	6	20.0%	7	23.3%
Moderate	20	66.7%	18	60.0%
Severe	4	13.3%	5	16.7%
Total	**30**	**100%**	**30**	**100%**

Chi-Square Test Result

$\chi^2 = 0.29$

P = 0.86

Interpretation: *Not Significant* (no difference between groups)

Table 4: Frequency and Percentage Distribution of Labour Pain After Effleurage Massage During First Stage of Labour

N = 60 (Experimental = 30, Control = 30)

Level of Labour Pain	Experimental Group(n = 30)	%	Control Group(n = 30)	%
No Pain	0	0.0%	0	0.0%
Mild	20	66.7%	6	20.0%
Moderate	9	30.0%	17	56.7%
Severe	1	3.3%	7	23.3%
Total	**30**	**100%**	**30**	**100%**

Chi-Square Test Result

$\chi^2 = 14.5$

P = 0.001

Interpretation: Significant

(There is a meaningful difference in pain levels between the groups after effleurage massage.)

Simple Summary

In the **experimental group**, after effleurage massage:

66.7% had mild pain

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30% had moderate pain
3.3% had severe pain
In the **control group**, without massage:
Only **20%** had mild pain
56.7% had moderate pain
23.3% had severe pain
Conclusion
Effleurage massage **significantly reduced labor pain** among mothers in the experimental group.
Objective 3:
To compare the labor pain during the first stage of labor among low-risk parturient mothers in the experimental and control groups.
Table 5: Comparison of Mean Pre-test and Post-test Pain Scores Between Experimental and Control Groups
N = 60

Test	No. of Mothers	Experimental Group Mean ± SD	Control Group Mean ± SD	Mean Difference	Student's Independent t-test	Significance
Pre-test	30	5.80 ± 1.74	5.63 ± 1.65	0.17	t = 1.76, P = 0.70	Not Significant
Post-test	30	3.06 ± 1.96	6.10 ± 2.00	3.04	t = 3.093, P = 0.01**	Significant

Simple Interpretation
Before the intervention, both groups had **similar pain levels**.
After effleurage massage, the experimental group had **much lower pain scores** compared to the control group.
Conclusion: Abdominal effleurage was effective in reducing labor pain.

Table 6: Comparison of Pre-test and Post-test Pain Scores Within the Experimental and Control Groups
N = 60

Group	No. of Mothers	Pre-test Mean ± SD	Post-test Mean ± SD	Mean Difference	Paired t-test	Significance
Experimental Group	30	5.80 ± 1.74	3.06 ± 1.96	↓ 2.74	t = 3.613, P = 0.001***	Significant
Control Group	30	5.63 ± 1.65	6.10 ± 2.00	↓ 0.47	t = 1.025, P = 0.025	Not Significant

Simple Interpretation
Experimental Group: Pain reduced significantly after effleurage (from 5.80 → 3.06).
Control Group: Pain increased slightly (from 5.63 → 6.10), but this change was **not significant**.
Conclusion: Only the experimental group showed significant pain reduction.
The statistical tests show that **abdominal effleurage massage significantly reduces labor pain** during the first stage of labor.
Therefore, the research hypothesis (**H1**) is **accepted**
Objective 4:
To find the association between the level of labor pain after effleurage massage during the 1st stage of labor among low-risk mothers with selected demographic variables.

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Table 7: Association Between Post-Test Pain Level and Demographic Variables
(Experimental Group vs. Control Group)
N = 60
A. Demographic Variables and Pain Levels

Variable	Categories	Experimental Group (n=30) Mild / Moderate / Severe	Chi-Square (p-value)	Significance	Control Group (n=30) Mild / Moderate / Severe	Chi-Square (p-value)	Significance
Age	18–20 yrs	3 / 5 / 1	χ^2=0.71, p=0.99	NS	3 / 5 / 3	χ^2=8.52, p=0.20	NS
	21–25 yrs	5 / 8 / 2	—	—	3 / 7 / 2	—	—
	26–30 yrs	1 / 2 / 1	—	—	1 / 2 / 3	—	—
	31–35 yrs	1 / 1 / 0	—	—	0 / 0 / 1	—	—
Religion	Hindu	12 / 2 / 2	χ^2=3.04, p=0.55	NS	4 / 6 / 4	χ^2=2.04, p=0.91	NS
	Muslim	6 / 4 / 2	—	—	2 / 4 / 3	—	—
	Christian	1 / 1 / 0	—	—	1 / 2 / 3	—	—
	Others	0 / 0 / 0	—	—	0 / 0 / 1	—	—
Education	Cannot read/write	3 / 1 / 1	χ^2=1.11, p=0.98	NS	3 / 2 / 2	χ^2=1.56, p=0.95	NS
	Primary–Middle	4 / 4 / 4	—	—	2 / 3 / 4	—	—
	High school	4 / 3 / 3	—	—	2 / 4 / 4	—	—
	Graduation+	1 / 1 / 1	—	—	1 / 1 / 2	—	—
Occupation	Working	7 / 5 / 2	**χ^2=19.04, p=0.004**	**Significant**	3 / 5 / 4	χ^2=10.68, p=0.098	NS
	Housewife	8 / 4 / 4	—	—	2 / 8 / 8	—	—
Type of Family	Joint	9 / 3 / 1	χ^2=3.47, p=0.746	NS	9 / 3 / 1	χ^2=5.21, p=0.509	NS
	Nuclear	7 / 5 / 2	—	—	7 / 5 / 2	—	—
	Extended	1 / 1 / 1	—	—	0 / 0 / 1	—	—
	Broken	0 / 0 / 0	—	—	0 / 0 / 0	—	—
Monthly Income	< Rs 5,000	3 / 1 / 1	χ^2=1.63, p=0.95	NS	2 / 1 / 1	χ^2=63.26, p=9.76	NS
	Rs 5,000–10,000	6 / 3 / 3	—	—	2 / 3 / 3	—	—
	Rs 10,001–15,000	2 / 3 / 2	—	—	2 / 6 / 2	—	—
	> Rs 15,000	3 / 2 / 1	—	—	3 / 3 / 2	—	—
Area of Living	Rural	4 / 2 / 1	χ^2=1.22, p=0.97	NS	2 / 2 / 1	χ^2=28.15, p=7.11	NS

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Variable	Categories	Experimental Group (n=30) Mild / Moderate / Severe	Chi-Square (p-value)	Significance	Control Group (n=30) Mild / Moderate / Severe	Chi-Square (p-value)	Significance
	Urban	3 / 3 / 1	—	—	1 / 5 / 3	—	—
	Slum	3 / 3 / 2	—	—	1 / 5 / 5	—	—
	Semi-urban	4 / 2 / 2	—	—	1 / 2 / 2	—	—

B. Present Obstetrical History

Variable	Category	Experimental Group (Mild/Moderate /Severe)	Chi-Square (p-value)	Significance	Control Group (Mild/Mod/Sev)	Chi-Square (p-value)	Significance
Gestational Age	37–38 wks	13 / 4 / 5	**χ^2=12.56, p=0.050**	**Significant**	1 / 10 / 11	χ^2=1.36, p=0.968	NS
	38–39 wks	3 / 2 / 1	—	—	3 / 2 / 3	—	—
	39–40 wks	1 / 1 / 0	—	—	0 / 1 / 1	—	—
Duration of 1st Stage	8–10 hrs	1 / 1 / 0	χ^2=3.08, p=0.79	NS	1 / 1 / 1	χ^2=4.08, p=0.79	NS
	11–12 hrs	3 / 1 / 1	—	—	2 / 1 / 1	—	—
	13–14 hrs	5 / 4 / 2	—	—	5 / 4 / 2	—	—
	15–16 hrs	2 / 3 / 1	—	—	4 / 3 / 1	—	—
Support Person Present	Yes	14 / 10 / 3	**χ^2=25.81, p=0.0002**	**Significant**	14 / 10 / 3	**χ^2=24.81, p=0.0002**	**Significant**
	No	2 / 1 / 0	—	—	1 / 1 / 0	—	—

Experimental Group

Significant associations were found between:

✔ **Occupation**

✔ **Gestational age**

✔ **Presence of support person**

All other demographic variables **showed no significant association** with pain level.

Control Group

Only:

✔ **Presence of support person**

was significantly associated with pain level.

All other variables were **not significant**.

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 Therefore, Hypothesis H2 was rejected.

Table 8: Maternal Satisfaction with Effleurage Massage

(Experimental Group, n = 30)

Satisfaction Level	Frequency (f)	Percentage (%)
Strongly Unsatisfied	0	0%
Unsatisfied	0	0%
Uncertain	4	13.34%
Satisfied	8	26.66%
Strongly Satisfied	18	60%
Total	**30**	**100%**

Simple Interpretation

60% of mothers were *strongly satisfied*.

26.66% were *satisfied*.

Only **13.34%** were *uncertain*.

None were unsatisfied.

SUMMARY

The main aim of the study was to to assess the efficacy of abdominal effleurage on labor pain level and maternal satisfaction during first stage of Labour among low risk parturient mother's.To accomplish the objectives and determine methodology for the study, a thorough review of literature was done. The Quantitative approach and quasi-experimental Non randomized control group research design was adopted for the study. The structured tool was developed and circulated among experts in the field of maternity nursing for establishing the content validity and necessary modifications were made according to experts view.

II. CONCLUSION

Based on the findings of the present study the investigator found statistically significant difference between experimental and control group. Thus it was proved that Abdominal effleurage was highly effective massage for reducing labor pain.

RECOMMENDATIONS

A similar study may be replicated on a larger scale A similar experimental study can be conducted with more randomized selection the sample. An experimental study can be conducted to compare the effect of two different non pharmacological measures on the reduction of the labor pain. An experimental study can be conducted to assess the effectiveness of abdominal effleurage on progress of labor. A study can be conducted to assess the knowledge and practices of the labor room nursing staff about the use of effleurage on pain relief, their advantages, risk factors and preliminary considerations etc. among mothers during their 1st and 2nd stage of labor. A similar study can be conducted in other ways like massage with increased the frequency and the duration of effleurage massage more 15minutes.

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