

A Study to Evaluate the Effectiveness of Abdominal Effleurage on Labour Pain During the First Stage of Labour among Parturient Women in Selected Hospitals, Kanpur

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ABSTRACT

Background: Labour pain is a multifaceted and intensely personal experience influenced by physiological, psychological, and emotional factors. While pharmacological interventions are widely used to manage this pain, they may be associated with undesirable maternal and neonatal outcomes. Non-pharmacological methods such as abdominal effleurage offer a safe, cost-effective, and empowering alternative to manage labour pain during childbirth.

Aim: To evaluate the effectiveness of abdominal effleurage on labour pain during the first stage of labour among parturient women in selected hospitals, Kanpur.

Methods: This quasi-experimental study involved 80 parturient women aged 20–30 years, selected through purposive sampling from Mariampur Hospital, Shastri Nagar, Kanpur, Uttar Pradesh. Participants were divided into a control group receiving standard care and an interventional group receiving abdominal effleurage during the active phase of labour (at 6–7 cm cervical dilation). Pain levels were assessed using a structured observational checklist focused on non-verbal pain behaviours. The study utilized the General System Theory as the conceptual framework.

Results: The findings indicated a significant reduction in pain scores among women in the interventional group compared to the control group. Abdominal effleurage was associated with improved maternal comfort, reduced anxiety, and enhanced emotional well-being without the need for pharmacological agents.

Conclusion: Abdominal effleurage is an effective non-pharmacological technique for reducing labour pain during the first stage of labour. Its integration into routine maternity care can enhance the childbirth experience, promote maternal satisfaction, and reduce reliance on pharmacological interventions.

Keywords: Abdominal effleurage, labour pain, first stage of labour, non-pharmacological pain relief, parturient women, maternal comfort.

INTRODUCTION

Childbirth is a profound and life-altering event in a woman's life, often accompanied by a complex interplay of emotional anticipation and physical discomfort.¹ Labour pain, while a natural component of the birthing process, is widely recognized as one of the most intense forms of pain experienced by women. Its perception is influenced by various physiological, psychological, and socio-cultural factors, making effective pain management a critical aspect of maternal care.² While pharmacological methods such as epidurals and analgesics are commonly used to alleviate labour pain, they may carry risks including prolonged labour, reduced maternal mobility, and neonatal respiratory depression.³

In recent years, there has been a growing emphasis on non-pharmacological interventions that promote comfort and empowerment during labour. Among these, abdominal effleurage—a gentle, rhythmic massage technique applied to the abdomen—has gained recognition for its ability to reduce pain and anxiety, stimulate endorphin release, and enhance maternal relaxation.⁴ This technique is simple, cost-effective, and easily administered, making it suitable for use in both resource-rich and resource-limited settings.⁵

The present study aims to evaluate the effectiveness of abdominal effleurage in managing labour pain during the active phase of the first stage of labour among parturient women in selected hospitals, Kanpur. By providing evidence-based insight into this intervention, the study seeks to support its integration into routine maternity care and promote safe, respectful, and woman-centered childbirth practices.

NEED FOR THE STUDY

Labour pain is universally acknowledged as one of the most intense and challenging forms of pain experienced by women. Despite the physiological nature of childbirth, many parturient women perceive labour pain as distressing and overwhelming, often leading to increased fear, anxiety, and a preference for pharmacological interventions or caesarean deliveries.⁶ While medical advancements have made pain relief more accessible, overreliance on pharmacological methods can result in adverse maternal and neonatal outcomes, such as prolonged labour, reduced mobility, and delayed bonding.⁷

The increasing institutionalization of childbirth in India has further highlighted the gap in personalized, supportive care during labour. In busy maternity units, continuous emotional and physical support often becomes secondary to clinical protocols.⁸ non-pharmacological methods such as abdominal effleurage offer a safe, cost-effective, and empowering alternative for labour pain management. However, their utilization remains limited due to lack of awareness, training, and standardized implementation.⁹

A quasi-experimental study conducted at Hind Institute of Medical Sciences, Bara Banki (Uttar Pradesh), supports the effectiveness of abdominal effleurage. Among 60 primigravida mothers, those who received effleurage massage showed a significant reduction in labour pain (mean score reduced from 5.80 to 3.06, $p = 0.001$), and 60% reported strong satisfaction with the intervention. These findings highlight the potential of effleurage as an effective non-pharmacological pain relief method, especially in resource-limited settings.¹⁰

Given the rising caesarean section rates and underutilization of holistic pain relief methods, it is imperative to explore and validate interventions like abdominal effleurage. This study aims to assess its effectiveness in reducing labour pain, promoting maternal comfort, and encouraging evidence-based, woman-centered care in hospital settings.

STATEMENT OF THE PROBLEM

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HYPOTHESIS

Null Hypotheses (H₀):

- H₀₁: There is no significant difference in pain scores between the control group and the interventional group at 6–7 cm cervical dilation during the active phase of the first stage of labour.
- H₀₂: There is no significant association between pain scores and selected socio-demographic variables in both the control and interventional groups.

Research Hypotheses (H):

- H₁: There is a significant difference in pain scores between the control group and the interventional group at 6–7 cm cervical dilation during the active phase of the first stage of labour.
- H₂: There is a significant association between pain scores and selected socio-demographic variables in both the control and interventional groups.

METHODS AND MATERIALS

Research Design: The study adopted a quasi-experimental non-equivalent control group design to evaluate the effectiveness of abdominal effleurage on labour pain among parturient women.

Setting of the Study: The study was conducted in the present study was conducted at Mariampur Hospital, Shastri Nagar, Kanpur, Uttar Pradesh, where institutional deliveries are routinely carried out under medical supervision.

Population: The target population comprised parturient women in the active phase of the first stage of labour admitted to the selected hospitals.

Sample and Sampling Technique: A total of 80 parturient women aged between 20 and 30 years were selected using a non-probability purposive sampling technique.

- **Experimental group:** Received abdominal effleurage
- **Control group:** Received routine care without effleurage

Inclusion Criteria:

- Women aged between 20–30 years
- Parturient women in the active phase of the first stage of labour (6–7 cm cervical dilation)
- Willing to participate and provide informed consent
- Able to read, write, and understand English or Hindi

Exclusion Criteria:

- High-risk pregnancies
- Women with medical or obstetrical complications
- Women who received prior pharmacological analgesia

DATA COLLECTION TOOLS:

1. **Sociodemographic and Obstetric Profile Sheet** – to gather baseline data.
2. **Modified Observational Checklist** – used to assess non-verbal pain behaviour indicators.

Intervention:

In the experimental group, abdominal effleurage massage was applied using gentle, rhythmic, anticlockwise strokes over the abdominal area during uterine contractions in the active first stage of labour. The control group received only routine maternity care.

Data Collection Procedure:

- Pre-intervention pain behaviours were observed and recorded for both groups.
- The experimental group received abdominal effleurage during active labour.
- Post-intervention pain scores were recorded using the same observational checklist.

Data Analysis: Descriptive and inferential statistics were used:

- **Descriptive:** Frequency, percentage, mean, and standard deviation

- **Inferential:** Paired and unpaired *t*-tests to compare pain scores, and Chi-square test to find association between pain scores and selected socio-demographic variables

DATA ANALYSIS AND INTERPRETATION

Table 1: Frequency and percentage distribution of parturient women according to demographic variables in interventional group control group

N=40+40

Sociodemographic Data	Interventional Group		Control Group	
	Frequency	Percentage	Frequency	Percentage
1 Age				
a) 18–20 years	12	30.0%	14	35.0%
b) 21–25 years	11	27.5%	9	22.5%
c) 26–30 years	10	25.0%	9	22.5%
d) 31–35 years	7	17.5%	8	20.0%
2 Gravida				
a) None	12	30.0%	12	30.0%
b) 1	11	27.5%	11	27.5%
c) 2	10	25.0%	10	25.0%
d) 3 or more	7	17.5%	7	17.5%
3 Parity				
a) None	17	42.5%	12	30.0%
b) 1	11	27.5%	11	27.5%
c) 2	7	17.5%	11	27.5%
d) 3 or more	5	12.5%	6	15.0%
4 History of Abortions				
a) None	14	35.0%	11	27.5%
b) 1	10	25.0%	10	25.0%
c) 2	9	22.5%	10	25.0%
d) 3 or more	7	17.5%	9	22.5%
5 Gestational Age				
a) 37 – 37+6 weeks	14	35.0%	15	37.5%
b) 38 – 38+6 weeks	13	32.5%	10	25.0%
c) 39 – 39+6 weeks	7	17.5%	8	20.0%
d) 40 – 42 weeks	6	15.0%	7	17.5%
6 Mode of Conception				
a) Natural conception	17	42.5%	18	45.0%
b) Assisted Reproductive Technology (e.g., IVF)	12	30.0%	10	25.0%
c) Ovulation induction	8	20.0%	6	15.0%
d) Intrauterine Insemination (IUI)	3	7.5%	6	15.0%
7 Birth Companion				
a) Yes	23	57.5%	23	57.5%
b) No	17	42.5%	17	42.5%
8 Antenatal Exercises				
a) Yes	21	52.5%	26	65.0%
b) No	19	47.5%	14	35.0%
9 Previous Experience with Abdominal Effleurage				

a) Yes	24	60.0%	21	52.5%
b) No	16	40.0%	19	47.5%



Table 1 implies the demographic distribution of parturient women in both the interventional and control groups was relatively comparable across age, gravida, parity, gestational age, mode of conception, and other variables. The majority in both groups were aged 18–25 years, primigravida or second gravida, and had no prior children. Around 57.5% had a birth companion, and over half in each group had previous experience with abdominal effleurage and practiced antenatal exercises. This comparability suggests baseline homogeneity between the two groups.

Table 2: To evaluate the effectiveness of abdominal effleurage on pain scores among parturient women during first stage of labour in interventional group

N=40

Knowledge aspects	Pretest Mean & SD	Post-test Mean & SD	t-value	Significance
Facial Expression	3.70 ± 1.74	2.08 ± 1.61	4.44	P<0.05; S
Paralinguistic Cues	3.28 ± 1.38	1.68 ± 1.45	5.18	P<0.05; S
Body Movements	3.80 ± 1.62	5.89 ± 3.98	4.47	P<0.05; S
Overall	3.80 ± 1.62	5.89 ± 3.98	5.58	P<0.05; S

Table 2 implies the data shows a statistically significant reduction in pain scores among parturient women after the application of abdominal effleurage ($P<0.05$). Improvements were noted across all aspects—facial expression, paralinguistic cues, and body movements—with a marked increase in overall pain management effectiveness, confirming that abdominal effleurage is effective in reducing labour pain during the first stage.

Table 3: Significant Associations Between Pretest Pain Scores and Demographic Variables (Interventional Group)

N = 40

Sociodemographic Variable	df	Chi-Square	Table Value	Inference
Age	3	11.24	7.185	P<0.05; Significant
Gravida	3	11.85	7.185	P<0.05; Significant
History of Abortions	3	8.89	7.185	P<0.05; Significant
Birth Companion	1	9.22	3.841	P<0.05; Significant

Table 3 implies that the analysis showed significant associations between pretest labour pain scores and the variables: age, gravida, history of abortions, and presence of a birth companion ($P<0.05$). This suggests that these factors may influence the initial perception of labour pain among parturient women in the interventional group.

Table 4: Significant Association Between Post-test Pain Scores and Demographic Variable (Interventional Group)

N = 40

Sociodemographic Variable	df	Chi-Square	Table Value	Inference
Mode of Conception	3	7.89	7.185	P<0.05; Significant

The table 4 implies that among all the demographic variables analysed, only **mode of conception** showed a statistically significant association ($P<0.05$) with post-test pain scores in the interventional group. This suggests that pain perception after abdominal effleurage may vary depending on how the pregnancy was conceived.

Table 5: Significant Associations Between Pretest Pain Scores and Demographic Variables (Control Group)

N = 40

Sociodemographic Variable	df	Chi-Square	Table Value	Inference
Age	3	13.31	7.185	P<0.05; Significant
Gravida	3	11.60	7.185	P<0.05; Significant
Birth Companion	1	6.00	3.841	P<0.05; Significant

The table 5 explains that in the control group, age, gravida, and presence of a birth companion showed significant associations with pretest pain scores ($P<0.05$). This indicates that these demographic factors may influence initial labour pain perception even in the absence of abdominal effleurage.

DISCUSSION

The present study aimed to evaluate the effectiveness of abdominal effleurage on labour pain during the first stage of labour among parturient women in selected hospitals of Kanpur. The findings revealed a significant reduction in pain scores in the interventional group after the application of abdominal effleurage, as reflected by improvements in facial expression, paralinguistic cues, and body movements ($P<0.05$). This suggests that abdominal effleurage, as a non-pharmacological method, is effective in alleviating labour pain and enhancing maternal comfort.

The study supports previous evidence indicating that effleurage massage promotes the release of endorphins and induces relaxation, thereby reducing the intensity of uterine contractions. In addition, the presence of a birth companion and antenatal exercises further contributed to better coping mechanisms among women. Significant associations between pre- and post-test pain scores with variables such as age, gravida, and mode of conception underline the influence of maternal characteristics on pain perception.

Comparable studies from Uttar Pradesh and other regions have reported similar outcomes, reinforcing the relevance of abdominal effleurage in routine maternity care. These findings emphasize the need for midwives and healthcare providers to incorporate evidence-based, non-invasive interventions like effleurage to improve the birthing experience in a safe, cost-effective, and empowering manner.

CONCLUSION

The present study demonstrated that abdominal effleurage is a safe, effective, and non-invasive method for reducing labour pain during the first stage of labour. It helped parturient women manage pain more comfortably and enhanced their overall birthing experience. The intervention proved beneficial without the use of pharmacological agents, thereby minimizing potential risks to both mother and foetus.

IMPLICATIONS:

- **Clinical Practice:** Midwives and nurses can incorporate abdominal effleurage as part of routine intrapartum care to provide holistic pain relief.

- **Education:** Nursing education programs should include training on non-pharmacological methods like effleurage to strengthen labour support skills.
- **Policy:** Hospitals should develop guidelines encouraging the use of evidence-based, low-cost interventions for labour pain management.
- **Research:** Further studies with larger samples and diverse populations are recommended to validate and expand the applicability of abdominal effleurage in different maternity settings.

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