

Original Research Article

Assessing the Efficacy of Abdominal Effleurage on Labour Pain Intensity and Outcomes During the First Stage of Labour

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Received: 12-04-2023 / Revised: 13-05-2023 / Accepted: 20-06-2023

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Conflict of interest: Nil

Abstract:

Objective: The purpose of the study was to evaluate the efficacy of abdominal effleurage during the first stage of labour on foetal and maternal parameters in labouring women.

Methods: The purpose of this quasi-experimental study was to evaluate the efficacy of abdominal effleurage during the first stage of labour on fetomaternal parameters in parturient mothers admitted to selected hospitals in Punjab, India. Tertiary care Medical College for the experimental group and a nearby civil Hospital in South west Punjab, for the control group were chosen as the research sites in Punjab.

Results: In the present study, according to age, the majority of parturient mothers, 12 (40 %) and 08 (26.66%) were in the Age group of 20-22 years in experimental and control group respectively.

Conclusion: Effectiveness of abdominal effleurage was observed in reducing labour pain perception, anxiety, duration of labour, and foetal heart rate in primigravidae mothers. Therefore, it may be administered as a non-pharmaceutical labour pain reliever.

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Introduction

Pain during labour is a virtually universal experience among women who give birth. Primigravida mothers have no understanding of the intensity of labour pain or how to manage it, as they have no prior experience.[1-3] Pain can result in negative outcomes including dread, loss of self-confidence, and anxiety.[4]

However, excessive fear and anxiety increases catecholamine secretion, resulting in increased pelvic discomfort. The stimuli that reach the brain intensify pain perception. Muscle tension grows as

anxiety increases. The efficacy of uterine contractions diminishes, and the intensity of discomfort increases. Thus, a cycle of growing dread and anxiety is initiated. This cycle will eventually retard the progress of labour.[5]

The duration of labour is dependent on the patient's perception of pain and anxiety, which influence the functioning of the respiratory, circulatory, and endocrine systems, as well as Apgar scores. Increased duration of labour is associated with an increased risk of infection, physical and

mental injury, and infant mortality, as well as an increased likelihood of postpartum haemorrhage, infections, exhaustion, anxiety, and psychosis.[6]

The foetal pulse rate is indicative of foetal health. Foetal distress may emerge suddenly in a foetus in jeopardy or in a pathologic state of labour.[6] In order to enhance the labour process, it is necessary to employ a method that reduces pain, tension, and anxiety. An ideal measure should satisfy the following criteria: minimal adverse effects for mother and foetus, permanent effect, ease of administration, and sufficient sedative effect without interfering with uterine contractions. By reducing pain, effleurage technique during labour makes the labour and delivery procedure more pleasant.[7]

Self-administered comfort measures, such as relaxation, breathing techniques, positioning/movement, massage, hydrotherapy, hot/cold therapy, music, guided imagery, acupressure, and aromatherapy, can help women achieve an effective level of coping for their labour experience without maternal and foetal complications.[8,9]

Massage is one of the most cost-effective interventions for reducing labour pain and anxiety, and partner participation in massage can have a positive impact on the quality of the birth experience for women.[10]

Effleurage is derived from the French verb effleurer, which means “to lightly touch”.[11] It is a type of massage. It consists of a series of long, smooth, rhythmic strokes performed with the fingertips or palms over the epidermis. It is the optimal technique for transitioning from one stroke form to another.[12] This technique has been utilised by midwives for many years to alleviate pain, tension, and discomfort during labour, and it has also been applied to other clinical situations.[12] The purpose of the study was to evaluate the efficacy of abdominal effleurage during the

first stage of labour on foetal and maternal parameters in labouring women.

Methods:

The purpose of this quasi-experimental study was to evaluate the efficacy of abdominal effleurage during the first stage of labour on fetomaternal parameters in parturient mothers admitted to selected hospitals in Punjab, India. The purpose of the study was to evaluate the efficacy of abdominal effleurage during the first stage of labour on foetal and maternal parameters in labouring women. To evaluate the efficacy of abdominal effleurage during the 1st stage of labour on fetomaternal parameters in labouring mothers, a non-randomized, post-test-only, control group research design and methodology were utilised.

A quantitative research approach was adopted to accomplish the objectives of the study and to assess the effectiveness of abdominal effleurage during 1st stage of labor on fetomaternal parameters among parturient mothers. In this study the independent variable was abdominal effleurage during the 1st stage of labor.

Socio-demographic variables included age (in years), level of education, and monthly family income. Companionship during labour, prior use of any form of massage therapy/complementary therapy, duration of ambulation during labour, use of any learned breathing exercise during labour, use of analgesics and any other drug during labour, and onset of labour were evaluated by obstetricians. The dependent variables of the study were fetomaternal parameters, including maternal parameters of pain, anxiety, and labour duration, and foetal parameter comprising of Foetal Heart Rate.

The study was conducted in two Hospitals of Punjab, tertiary care Medical college for the experimental group and a nearby civil Hospital in South west Punjab were selected for the control group. The reason for selecting these hospitals was investigator's convenience, feasibility, proximity and

expected co-operation from authorities in getting permission for conducting the study.

Target Population comprised of 60 parturient mothers admitted in labor rooms.

Sampling Technique and Sample Size: Non-probability purposive sampling technique was used to select the sample.

Inclusion Criteria comprised of parturient mothers who were having singleton pregnancy, primigravidae, gestation age of 38-42 weeks, willingness to participate in the study, available at the time of data collection and able to comprehend English, Hindi or Punjabi.

Exclusion Criteria comprised of mothers having past Medical illness and Obstetric complications, receiving any other complementary therapy such as Music therapy or having intolerance to the application of massage therapy.

Data collection was done in the month of February 2016. It was conducted in the civil hospital and the tertiary care Medical Hospital. . A total of 60 parturient mothers were selected based on inclusion and exclusion criteria through non- probability purposive sampling technique. Before giving intervention, written consent was taken from parturient mothers. Abdominal effleurage was provided to the experimental group for 30 min in active phase and 30 min in transitional phase. Post interventional assessment was done in both phases. Post interventional assessment of Pain was done by using Modified Pain Rating Scale and Anxiety assessment was done by using Self

Structured Anxiety Questionnaire and Duration of labor was checked by maintaining record sheet (Duration of 2nd, 3rd, 4th stage of labor and total duration checked with the help of patient record file). Fetal heart rate was checked with stethoscope and record sheet was maintained in each phase of labor. Only routine care was provided to the control group. Post interventional assessment of fetomaternal parameters was done in the same manner in case of control group. Comparison of post interventional fetomaternal parameters of experimental and control group was done.

The parturient mother received abdominal effleurage after being placed in a comfortable position. Active phase abdominal effleurage was administered for 30 minutes and transitional phase abdominal effleurage was administered for 30 minutes using abdominal circles, side strokes, and abdominal strokes. In both phases, post-interventional evaluation of fetomaternal parameters was conducted

Results

The demographic and obstetric variables and their association between experimental and control group are depicted in table 1. According to the statistical correlation, results showed no correlation between the basic demographic variables between the experimental and control groups. Table 2 depicts the frequency and percentage distribution of pain and anxiety among parturient mothers in experimental versus control groups.

Table 1: The demographic and obstetric variables and their association between experimental and control group

S. No	Demographic Variable	Experimental group (n=30)	%age	Control group (n=30)	%age	Chi square value Df (degree of freedom)
1	Age (in years)					
	< 20	10	33.3	14	46.66	1.32 df=2
	20-22	12	40	08	26.66	
	23-25	08	26.66	08	26.66	
2	Education					
	Illiterate	10	33.3	09	30	29 Df=4
	Primary	06	20	06	20	
	Matric	07	23.33	07	23.33	
	Secondary	04	13.33	06	20	
	Graduation & above	03	10	02	6.67	
3	Family income/month (in Rupees)					
	≤5000	11	36.67	15	5	7.82 Df=3
	5001-10000	10	33.3	11	36.6	
	10001-15000	05	16.67	02	6.67	
	>15000	04	13.33	02	6.67	
4.	Companionship during labour					
	Active phase					
	Yes	19	63.33	16	53.33	0.6 Df=1
	No	11	36.67	14	66.67	
	Transitional phase					
	Yes	23	76.67	20	66.67	0.72 Df=1
	No	07	23.33	10	33.33	
5	Previous use of any type of massage/complementary therapy					
	Yes	6	20	0	0	6.66 Df=1
	No	24	80	30	100	
6	Duration of ambulation during labor					
	Active phase					
	≤ 15 min	0	0	17	56.67	2.48 Df=1
	16-30 min	18	60	11	36.67	
	31-45 min	12	40	02	6.66	
	≥ 46 min	0	0	0	0	
	Transitional phase					
	No ambulation	0	0	11	0	6.04 Df=3
	5-10 min	04	13.33	14	46.67	
	10-15 min	16	53.33	05	16.66	
	>15 min	10	33.34	0	0	
7	Use of any learned breathing exercise during labour					
	Active phase					
	Yes	0	0	9	30	10.58 Df=1
	No	30	100	21	70	
	Transitional phase					
	Yes	0	0	11	36.67	13.46 Df=1
	No	30	100	21	63.33	
8	Use of any analgesics during labor					
	Active phase					
	Yes	0	0	6	20	6.06 Df=1
	No	30	100	24	80	
	Transitional phase					
	Yes	0	0	0	0	Can't be computed
	No	30	100	30	100	
9	Onset of labour					
	Spontaneous	26	86.67	28	93.33	0.72 Df=1
	Induced	04	13.33	02	6.66	

Table 2: Frequency, percentage distribution and statistical interpretation of pain and anxiety among parturient mothers in experimental vs control group

Criteria	Active phase				Transitional phase			
	Experimental group		Control group		Experimental group		Control group	
	n	% age	n	% age	n	%age	n	%age
Pain Score								
Mild (1-3)	30	100	0	0	0	0	0	0
Moderate (4-6)	0	0	6	20	19	63.33	0	0
Severe (7-10)	0	0	24	80	11	36.66	30	100
Anxiety Score								
Mild ≤ 10	0	0	0	0	0	0	0	0
Moderate 11-20	30	100	0	0	30	100	0	0
Severe ≥ 20	0	0	30	100	0	0	30	100

Table 3 depicts the duration of labor in experimental versus the control group in which it is concluded that the duration of labor among parturient mothers gets decreased in active and transitional phase of labor and total duration of labor also decreases in experimental group than the

control group. Duration of latent phase, 2nd stage of labor, 3rd stage of labor and 4th stage of labor was same in both groups. Thus, it shows that abdominal effleurage was effective as it helped to decrease the duration of labor among parturient mothers.

Table 3: Duration of labor in experimental versus the control group

	Duration of labor		df		't' value	
	Experimental group (n=30)		Control group (n=30)			
	Mean	SD	Mean	SD		
Latent phase	396.83	22.45	408.16	20.14	58	1.0574 ^{NS}
Active phase	180.83	16.87	240.5	10.53	58	16.4315***
Transitional phase	59.5	8.74	86.5	11.07	58	10.4797***
2 nd stage of labor	79.16	13.83	82.33	10.88	58	0.9851 ^{NS}
3 rd stage of labor	13.66	2.91	14.5	3.31	58	1.0348 ^{NS}
4 th stage of labor	63.83	6.52	67.16	9.97	58	1.5321 ^{NS}
Total duration of labor	793.83	28.61	899.16	22.13	58	15.9506***
NS - non significant						
*at 0.05 level						
**at 0.01 level						

Table 4 depicts the heart rate characteristics of the fetus in experimental vs control groups. It concludes that Fetal heart rate of parturient mothers in experimental group got increased in active and transitional phase of labor and in control group fetal

heart rate got decreased with the intensity of labor pains. Thus, it shows that abdominal effleurage was effective. It helped to maintain normalized fetal heart rate during labor among parturient mothers.

Table 4: Fetal heart rate characteristics of the fetus in experimental vs control groups

Group	Fetal heart rate				df	't' value
	Active phase		Transitional phase			
	Mean	SD	Mean	SD		
Experimental Group (n=30)	135.7	4.09	129.86	3.47	29	5.9516***
Control group (n=30)	128	2.72	122.8	2.01	29	8.4076***
't' Value	t= 8.5702***		t= 9.6529***			
	df= 58		df= 58			

Table 5 and 6 depict the relationship of pain and anxiety respectively in the two groups. Inference drawn is that abdominal effleurage helps in alleviation of pain and anxiety in a statistically significant manner.

Table 5: Pain characteristics between experimental and control group.

Group	Pain						df	't' value
	Active phase			Transitional phase				
	n	Mean	SD	Mean	SD			
Experimental group	30	2.56	0.5	6.26	0.63	29	24.8848***	
Control group	30	9.3	0.65	9.83	0.38	29	3.8766***	
't' value		t = 44.7842*** df= 58		t = 26.2730*** df= 58				

Table 6: Anxiety characteristics between experimental and control group.

Group	Anxiety						df	't' value
	Active phase				Transitional phase			
	N	Mean	SD		Mean	SD		
Experimental	30	17.93	1.89	16.36	1.75	29	3.3277**	
Control	30	25.5	1.04	26.43	0.67	29	4.1099***	
't' value	't' = 19.1826*** <u>df</u> = 58				't' = 29.3519*** <u>df</u> = 58			

Other variables, such as educational status, family income, duration of ambulation, mode of labour onset, use of any learned breathing exercise or prior use of analgesics, had no statistically significant effect on the pain and anxiety score. In the experimental group, companionship during both active and transitional periods significantly reduced pain perception scores, but had no effect on anxiety.

In both the experimental and control groups, parturients of younger ages exhibited greater apprehension. As calculated by the ANOVA test, the mean value of post-intervention Anxiety in the younger age group was not statistically significant at the $p < 0.05$ level of significance.

Discussion

In the present study, participants in the experimental group received abdominal effleurage, and the effects of this intervention on a number of parameters were evaluated. According to age, the preponderance of parturient mothers in the present study, 12 (40%) and 08 (26.66%), were between the ages of 20 and 22 in the experimental and control groups, respectively. In Sushree and Truptimayee's study, the plurality of primiparous mothers (33%) were between the ages of 20 and 22.

There was no correlation between pain and anxiety scores and age, income, education, time of ambulation, or labour onset. Identical results were reported by a separate study.[5] Parturients who received the intervention experienced less intense pain during both the active and transitional phases. In their study, Sushree Sangeeta Priyadarsini found that all primigravida mothers experienced moderate pain during post-interventional assessment, whereas all primigravida mothers in the control group experienced severe pain during the first stage of labour.[13] This investigation is comparable to the current one. The influence of the hormone relaxin on pain perception is the subject of current research,

with increasing levels correlated with higher pain perception scores among the study participants. It is believed that effleurage decreases its levels. The stimulation of the motor, nervous, and cardiovascular systems, along with the proper channelling of venous and lymphatic flow, reduces the level of perceived pain.

Another study showed results that use of analgesics during labour shows significant association with fetal heart rate. No such association was observed in the present study.[14] Angel Raja Kumari. G conducted a study to assess the effectiveness of companionship during labour on pain perception of primigravida mothers.[15] Study findings revealed that companionship during labour had a significant association with labour pain. Our study also showed a decrease in the pain scores with companionship, although there was no statistically significant impact on anxiety scores.

Conclusion:

Effectiveness of abdominal effleurage in reducing labour pain perception, anxiety, duration of labour, and foetal heart rate in primigravidae mothers. Therefore, it may be administered as a non-pharmaceutical labour pain reliever.

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