

# Effect of Warm Compression on labor Pains during Active Phase of 1<sup>st</sup> Stage of Labor in Primigravida Admitted in Labor Room Queen Mary Hospital Lucknow

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**Abstract:** ***Background:** Labor pain is one of the very intense pains and maternal fear of pain is one of the main reasons for an elective cesarean section. Thus, controlling labor pain is a one of their major concern of maternity care. Nowadays, interest in non-pharmacological pain relief methods has been increased because of their fewer side effects.<sup>4</sup> The main purpose and advantages of warm compress are to alleviate pain, chills, and joint stiffness, muscle spasm, and increases connective tissue elasticity. It helps to improve the cervical dilatation and reduces pain during labor. **Method:** A quasi experimental with time-series research design (post-test only control group design), study was carried out in Queen Mary's Hospital Lucknow. The study was conducted on 64 primi mother who were randomly divided into two groups (32 in each experimental group and control group) and samples were selected through purposive sampling technique. The study was explained to participants and consent was taken. The data was collected by numerical pain rating scale to assess the pain. Warm compress was administered for 15 minute at half an hour's interval till the dilatation is 9 cm for experimental group. After each intervention assessment of pain was done for both groups at five times. Following the data are analyzed with SPSS statistical software. **Results:** The result showed that there was a significant difference in pain scores between both groups after each intervention. Pain score in experimental group was (0.198) after 15 min, (0.165) after 45 min, (0.459) after 90 min, (0.167) after 135 min, (0.524) after 180 min, (0.524) after 225 min. Pain intensity was lower in the experimental group compared with the control group. **Conclusion:** The study concluded that warm compress was cheap and easy to use by everyone. It can also be used in the home care setting by the mother's attendant and it shows the effective outcome of pain reduction. Based on the finding it is advisable for the staff nurse and the student to use this method in the practice areas to reduce the pain of the mother during childbirth.*

**Keywords:** Warm compression, Labor pain, Effect, Active phase, First stage of labor

## 1. Introduction

The childbirth event is an important part of every woman's life. Pain in labor is a virtually universal experience for the childbearing woman.<sup>1</sup> Birth is one of the life events that are related to rituals and beliefs, and is described by the term "rite of passage". Throughout the birth process, management of labor pain is an important feature of obstetric care and a vital goal of intrapartum care.<sup>2</sup>

In the early 20th century, most women gave birth in the comfort and familiarity of their own homes. Being near their family members helped them relax and they could tolerate the pain but there were high rates of maternal and infant mortality. Advances in obstetric technology and maternal-fetal medicine shifted birth from the home to the hospital.<sup>5</sup>

The average annual number of births throughout a year per 1,000 persons in the population at midyear; also known as crude birth rate. The birth rate is generally the dominant factor in determining the rate of population growth. It depends on both the level of fertility and the age structure of the population. The birth rate is estimated at around 18.7 births/1,000 population worldwide. This rate results in about 258 worldwide births per minute or 4.3 births every second.<sup>6</sup>

In India, Childbirth was estimated at around 27,243,000 births per year. Out of which, 72% go through normal vaginal deliveries and 90% occur in hospital settings. Institutional deliveries are mostly performed in our country<sup>6</sup> for several decades, childbirth educators have focused on the ease of pain and discomfort during the childbearing experience. The control of labor pain is a major goal of intrapartum care. There are two general approaches: pharmacologic and non-pharmacologic. Pharmacologic approaches are managed at the elimination of the physical sensation of labor pain, whereas non-pharmacologic approaches are mostly directed towards the prevention of discomfort. A wide array of non-pharmacological pain relief measures, as well as pharmacological interventions, is currently available to women in labor.<sup>5</sup>

Warm compressor heat application is easy to use and cheap that requires no prior practice and has fewer negative side effects. It is popular with laboring women for the reduction of pain. Heat is typically applied to women's back, lower abdomen, groin, or perineum. It mainly includes a warm water bottle, warm compress, and electric heating pads.

The main purpose and advantages of warm compress are to

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alleviate pain, chills, and joint stiffness, muscle spasm, and increases connective tissue elasticity. It helps to improve the cervical dilatation and reduces pain during labor. The relaxation occurs due to warm compress to increase the pain tolerance through the number of the process including a reduction in anxiety, increased uterine blood flow, and decreased muscle tension. This may help women to cope with labor pain and encourage a positive attitude.<sup>5</sup>

Pain is a complex sensation that is difficult to understand. It is an abstract and unpleasant feeling which is individually identified. It has been observed that nurses & midwives pay less attention to manage labor pain and they should do their routine nursing care assessment as hourly vital signs assessment and hourly fetal heart rate monitoring without attention to labor pain. They see labor pain as a natural process that occurs to each woman. One of the popular non-pharmacological methods is heat therapy applied to the sacral- perineal area during labor because heat dilates blood vessels and raises blood flow, it can affect the transmission of pain impulses and can increase collagen elasticity<sup>1</sup>.

## 2. Methodology

A quasi experimental with time-series design (post- test only control group design), study was carried out in Queen Mary's Hospital Lucknow. The study was conducted on 64 primi mother who were randomly divided into two groups (32 in each experimental group and control group) and samples were selected through purposive sampling technique. The study was explained to participants and consent was taken. The data was collected by numerical pain rating scale to assess the pain. Warm compress was administered for 15 minute at half an hour's interval till the dilatation is 9 cm for experimental group. After each intervention assessment of pain was done for both groups at five times.

### Description of Tool

#### Section A:

##### Consist of Sample characteristics

It includes Age in years, income, type of family, occupation, marital life, education, religion, area of residence.

#### Section B:

Numerical pain rating scale (NPRS).

##### Data Collection Procedure-

First of all ethical permission was obtained from the ethics committee of KGMU, Lucknow. After getting the ethical clearance, formal permission was taken from the respective HOD of Queen Mary hospital at Lucknow. The data collection period started from 4th November 2019 to 31st January 2020 to complete. After checking the feasibility of the study & testing the reliability of the tool with the help of the pilot study, minor modifications were made as per the findings of the pilot study. Following which the investigator started the main study. The sample was taken by non-probability, purposive sampling technique, and all the potential participants matching the inclusion and exclusion criteria. Self-introduction was given to the participants.

After that purpose and benefits of the study were explained to the participants and informed consent was taken.

## 3. Description of Intervention

- 1) A sterile metal container was filled with warm water (45°C-59°C).
- 2) Then a sterile cloth was soaked in the water and squeezed before being placed gently on the lower abdomen for 15 minutes during the active phase of the 1st stage of labor.
- 3) The temperature ranged from 38°C to 44°C during its application. After half an hour of interval, the towel was re-soaked in the water to maintain warmth then reapplied again.
- 4) After each intervention assessment of pain was being done by the Numerical pain rating scale, from the study group

## 4. Result

### Section – A

Distribution of selected sample characteristics of Primi gravida mother.

**Table 1:** Frequency and percentage distribution of primigravida mother according to their demographic variable study and control group, n=64

Socio demographic variables	Control Group		Study group		Total		Chi sq	p-value
	No	%	No	%	No	%		
<b>Age</b>								
<= 20 yr	5	15.6	2	6.3	7	10.9	7.8	0
21 - 25 yr	17	53.1	27	84.4	44	68.8	3	50
26 - 30 yr	8	25	3	9.4	11	17.2		
> 30 yr	2	6.3	0	0	2	3.1		
<b>Total</b>	<b>32</b>	<b>100.0</b>	<b>32</b>	<b>100</b>	<b>64</b>	<b>100.0</b>		
<b>Education</b>								
Literate	32	100	32	100	66	100	NA	NA
<b>Total</b>	<b>32</b>	<b>100</b>	<b>32</b>	<b>100</b>	<b>64</b>	<b>100.0</b>		
<b>Occupation</b>								
Sedentary worker	3	9.4	3	9.4	6	9.4	0	1
Moderate Worker	27	84.4	27	84.4	54	84.4	0	0
Heavy worker	2	6.3	2	6.3	4	6.3		
<b>Total</b>	<b>32</b>	<b>100.0</b>	<b>32</b>	<b>100</b>	<b>64</b>	<b>100.0</b>		
<b>Monthly Income</b>								
5000-10000	5	15.6	0	0	5	7.8	6.4	0.1
10,000-15000	15	46.9	16	50	31	48.4	3	70
15,000-20000	9	28.1	13	40.6	22	34.4		
20,000-25000	2	6.3	1	3.1	3	4.7		
>25,000	1	3.1	2	6.3	3	4.7		
<b>Total</b>	<b>32</b>	<b>100.0</b>	<b>32</b>	<b>100</b>	<b>64</b>	<b>100.0</b>		
<b>Type of family</b>								
Nuclear	16	50	20	62.5	36	56.3	1	0.3
Joint	16	50	12	37.5	28	43.8	2	13
<b>Total</b>	<b>32</b>	<b>100.0</b>	<b>32</b>	<b>100</b>	<b>64</b>	<b>100.0</b>		
<b>Religion</b>								
Hindu	26	81.3	24	75	50	78.1	0.3	0.5
Muslim	6	18.8	8	25	14	21.9	7	45
<b>Total</b>	<b>32</b>	<b>100.0</b>	<b>32</b>	<b>100</b>	<b>64</b>	<b>100</b>		
<b>Area of residence</b>								
Rural	26	81.3	27	84.4	53	82.8	0.1	0.7
Urban	6	18.8	5	15.6	11	17.2	1	40
<b>Total</b>	<b>32</b>	<b>100.0</b>	<b>32</b>	<b>100</b>	<b>64</b>	<b>100.0</b>		

**Table 2:** Intergroup Comparison of Pain Score between

Control & Experimental Groups for various Series

Group	Control Group		Experimental Group		Mann Whitney Test	
	Mean	SD	Mean	SD	z-value	p-value
Series - 1	5.69	1.86	2.41	1.70	-5.43	<0.001
Series - 2	6.59	1.52	3.56	1.66	-5.51	<0.001
Series - 3	7.03	1.33	4.00	1.16	-6.24	<0.001
Series - 4	7.34	1.10	5.50	1.67	-4.35	<0.001
Series - 5	9.00	0.80	7.50	1.19	-5.20	<0.001
Average	7.13	0.51	4.59	0.79	-6.83	<0.001

**Hypothesis testing for comparison of pain score between Control & Experimental Groups for various Series- Hypotheses were tested at p< 0.001 level of significance**

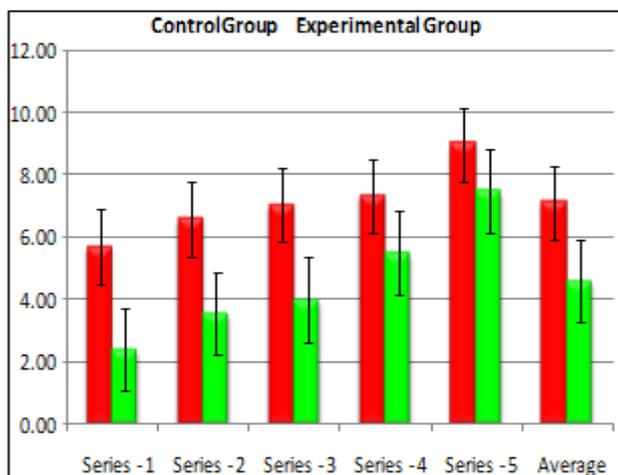
**H0:** There will be no significant difference between labor pain intensity in the control group and study group.

**H1:** There will be significant difference between labor pain intensity in the control group and study group.

There was significant difference between both the groups in series- 1, series-2, series-3, series-4, series-5, and pain score. Hence, the null hypothesis was rejected and the research hypothesis was accepted. Thus it can be interpreted that experimental group have rapidly decreased level of pain as compared to the control group. It showed that experimental group intervention was effective to reduce pain level.

**Table 3:** Intergroup Comparison of Pain Proportion between Control & Experimental Groups for various Series

Series	Pain Rating	Control Group		Experimental Group		chi sq	p-value
		No.	%	No.	%		
Series- 1	1 to 3	2	6.3	18	56.3	30.38	<0.001
	4 to 6	10	31.3	13	40.6		
	7 to 10	20	62.5	1	3.1		
Series -2	1 to 3	0	0	17	53.1	31.26	<0.001
	4 to 6	15	46.9	14	43.8		
	7 to 10	17	53.1	1	3.1		
Series- 3	1 to 3	0	0	15	46.9	11.79	0.003*
	4 to 6	17	53.1	17	53.1		
	7 to 10	15	46.9	32	100.0		
Series- 4	1 to 3	0	0	4	12.5	8.28	0.016*
	4 to 6	9	28.1	15	46.9		
	7 to 10	23	71.9	13	40.6		
Series- 5	4 to 6	0	0	4	12.5	4.27	0.039*
	7 to 10	32	100.0	28	87.5		



**Table 6:** Association of demographic variables with Average Pain Score

Age	Average Pain Score		F-value	p-value
	Mean	SD		
<= 20 yr	6.26	1.43	3.55	0.020
21 - 25 yr	5.51	1.41		
26 - 30 yr	6.71	1.12		
> 30 yr	7.50	0.42		
Occupation				
Sedentary worker	5.87	1.67	0.27	0.768
Moderate worker	5.90	1.38		
Heavy worker	5.35	2.24		
Monthly Income				
5000-10000	7.16	0.41	1.54	0.203
10000-15000	5.70	1.48		
15000-20000	5.90	1.37		
20000-25000	6.07	1.63		
>25000	4.87	1.94		
Type of family				
Nuclear	5.92	1.37	0.37	0.710
joint	5.79	1.55		
Religion				
Hindu	5.98	1.39	1.24	0.220
Muslim	5.44	1.58		
Area of residence				
Urban	5.83	1.44	0.44	0.663
Rural	6.04	1.50		

### 5. Discussion

The finding of the study showed that there is a highly significant difference in the study group due to the effect of warm compression. For series – 1, P-value (p<0.001), For series – 2, P- value (p<0.001), For series – 3, P-Value (p<0.001), For series – 4, P-Value (p<0.001) For series – 5, P-Value (p<0.001). Whereas the findings of the study were supported by the following literature: A pre-experimental study to evaluate the effects of warm compress on reducing pain contraction during labor. With the design of one- group pre-post test design. The population used in this research is the mother birthing physiological in BPM Kusmawati Surabaya. A large sample was 20 maternity mothers, taken with quota sampling. The data were analyzed using paired-samples t-test statistical test with a significant  $\alpha$  level of 0.05. Paired t-test (Paired samples t- test) p-value = 0.01. From this result can be concluded that warm compresses are effective in reducing the pain of contractions in the first stage of the labor active phase. Based on this birth attendants should be able to implement measures to reduce pain during labor, including by way of warm compresses. The study concluded that this method is effective also; it is also very easy and can be done by the family or labor companion.<sup>43</sup>

### 6. Conclusion

The study concluded that warm compress were cheap and easy to use by everyone, even it can also be used in the home care setting by the mothers attendant and it shows effective outcome of pain reduction. Based on the finding it is advisable to the staff nurse and the student to use this method in the practice areas to reduce the pain of the mother during childbirth.

## 7. Acknowledgements

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## References

- [1] Bahuguna P, Kumar L, B G. Effectiveness of Warm Compress on Pain Among Primi Mothers with First Stage of Labour Admitted in Labour Room. *International Journal of Trend in Scientific Research and Development*. 2018; Volume-2(Issue- 6):1245-1249. ([www.ijtsrd.com](http://www.ijtsrd.com))
- [2] Taavoni S, Abdollahian S, Haghani H. Effect of Sacrum-Perineum Heat Therapy on Active Phase Labor Pain and Client Satisfaction: A Randomized, Controlled Trial Study. *Pain Medicin* 2013;14(9):1301-1306. <https://doi.org/10.1111/pme.12161>.
- [3] Jerlin priyam. P. A comparative study to assess the effectiveness of acupressure and warm compress on labour pain during first stage of labour among primigravidae mothers in selected hospitals at kanyakumari [m.sc (n).ph.d.]. Dr. M.g.r. Medical university, chennai; 2016.
- [4] Ritabala Devi T, Memchoubi K. Effect of sacral warm compress on the level of pain during first stage of labour among primi gravida mothers. *International Journal of applied research* 2017; 3(6):144-149. 2017;(6):144-149.
- [5] Fritria Dwi Anggraini, effectiveness of warm compress in reducing pain contraction on first stage of labor. UNUSA, FKK, D-III of Midwifery – Jl. SMEA 57 Surabaya 2011.