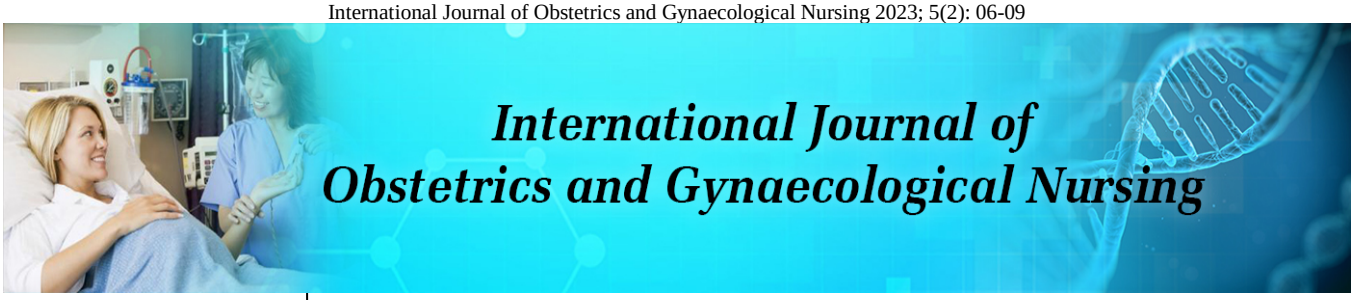

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Effect of warm compress on pain perception during first stage of labour among primigravida mothers

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Abstract
The objectives of the study were to assess the effect of warm compress on pain perception during first stage of labour among primigravida mothers and to find out the association between pain perceptions during first stage of labour among primigravida mothers with selected socio-demographic variables. Quantitative research approach, pre-test - post-test control group design was used. 60 samples were selected, where 30 in experimental group and 30 in the control group, by non-probability purposive sampling method. Pretest and post-test pain scores were assessed by using Numerical Pain Rating Scale. The results shows that there was a significant difference in the level of pain perception after warm compress between the primigravida mothers of the experimental group and control group and there was a significant association between pre-test pain score and selected socio-demographic variables like age and occupation. The study concluded that warm compress was effective in reducing labour pain.

Keywords: Assess, effect, warm compress, pain perception, first stage of labour, primigravida mothers

1. Introduction
Childbirth is the culmination of a human pregnancy with the emergence of a newborn infant from its mother's uterus. A woman is considered to be in labour when she begins experiencing regular, strong uterine contractions, accompanied by effacement and dilatation [1]. Conventionally, events of labour are divided into four stages: The first, second, third and fourth stages. First stage of labour starts from the onset of true labour pain and ends with full dilatation of the cervix. Its average duration is 12 hours in primigravida and 6 hours in multiparae. The second stage of labour starts from the full dilatation of the cervix and ends with expulsion of the fetus from the birth canal. Its average duration is 2 hours in primigravida and 30 minutes in multiparae. The third stage begins after expulsion of the fetus and ends with expulsion of the placenta and membranes. Its average duration is about 15 minutes in both primigravida and multiparae. The fourth stage is the stage of observation for at least one hour after expulsion of the after-births [2].
The first stage of labour is divided into three phases: Latent, active and transition phases. The active phase of labour begins when the cervix is 4 cm dilated and ends with 8cm dilatation. During this phase, contractions occur every 3 to 5 minutes and last up to 60 seconds. The intensity of each contraction begins as moderate and continues to increase as the woman gets closer to transition phase. The average length of the active phase in the primigravida is 6 hours and in the multigravida is 4 hours. Dilatation rate is 1.2 to 1.5 cm/hr. Labour pain is among the most severe pain human beings experience. Parity also influences labour pain and primiparous woman experience more pain during early labour, while multiparae have greater pain in the second stage. Although several factors influence parturition pain, its severity varies widely and the occurrence of truly painless labour is rare [3]. The pain of labour in the first stage results from dilatation of the cervix and lower uterine segment and from distension of the body of the uterus by uterine contractions and is transmitted by afferent nerve fibres of the 10^{th}, 11^{th} and 12^{th} thoracic and 1^{st} lumbar nerves [3]. The pain in the second stage of labour is mediated by T_{12} to L1, and S_2 to S_4 spinal segments [4]. The descending head causes pressure on the lumbosacral plexus responsible for pain felt in the back, thighs and legs [3].

Pain relief in labour is often challenging without regional analgesia. Effective management of labour pain plays a relatively minor role in a woman's satisfaction with childbirth [4]. Labour pain is described as intolerable in about one-third of women [3]. Ronald Melzack (Canada), studied the pain of labour and experiences of pain in his research. He found that overall childbirth can be called severely painful, but the intensity of the pain is variable. About 25% of primi mothers and only 11% of experienced mothers rated labour as horrible or excruciating. In fact, 9% of primi mothers and 24% of experienced mothers said they had low levels of pain [5]. Some studies have shown that when women are offered analgesia during labour, they report greater satisfaction with their overall birth experience. A survey with 100 parturients in Chennai, India, found that only half of the participants were in favour of labour pain being relieved, but even fewer (18/51, 35.29%) could state the benefits of relieving pain and stress. Hence, only 23/100 (23%) women reported any plans to use analgesia during labour [6]. In a super-speciality hospital at Kottayam, a semi-urban town in Kerala, most mothers to become asking for a "Painless Labour" or a caesarean section. The reproductive health of the Malayali woman is considered far better than in other parts of India but Kerala, in recent years, has been showing an appalling rate of caesareans done in super-speciality private hospitals [7].

A heat pack is a good way to relieve the pain and can place them on the back, as well as the abdomen and groin area. This could help relieve some of the tension felt in these areas during labour, helping to relax, reduce pain and feel more comfortable. Heat also helps to increase connective tissue extensibility and this may be useful to help the baby move down the birth canal and through the pelvis. Warm compress provides a competing sensation that helps to reduce the amount of pain felt. This is described as the gateway theory of pain. It provides a source of distraction, helps to relax and loosen tight muscles that helps reduce pain due to tight muscles. It promotes healing of any tissue that has been damaged and may reduce the amount of time it takes to heal [8]. Considering the above factors, the researcher felt that there is a need for conducting a study on the effect of warm compress on pain perception during first stage of labour among primigravida mothers

2. Materials and Methods

Quantitative research approach was used in this study. The research design adopted for the study was a pre-test - post-test control group design which is a quasi-experimental design. The variables mainly included in this study are independent and dependent variables. Warm compress is the independent variable and pain perception is the dependent variable in this study. The study was conducted at District Hospital, Neyyattinkara. In this study, 60 primigravida mothers who met the inclusion criteria of this study were selected, out of which 30 mothers will be assigned for the experimental and 30 mothers for the control group. Non-probability purposive sampling technique was found appropriate to select the samples. The tool consisted of socio demographic variables, clinical data, pain assessment - Numerical Pain Rating Scale. Prior permission from authority was obtained for data collection. The investigator introduced herself to the participants and objectives of the study was explained to them and their oral consent was obtained. Pre-test was done to both group. Intervention was given in the form of warm compress which is administered for 15 minutes at 45 minutes interval for 4 hours during the active phase of labour to the experimental group. Post-test was done after every warm compress. At the same time post-test was done to control group. The data obtained were analyzed by using descriptive and inferential statistics. Frequency and percentage was used to determine the distribution of samples according to the socio demographic variables and clinical data. The comparison of effect of warm compress on pain perception among primigravida mothers in experimental and control group was analyzed by using Mann Whitney U test. The association between pretest pain score and selected demographic variables was analyzed by using independent ‘t’ test.

3. Results and Discussions

The data obtained were analyzed and presented under the following sections

3.1 Sociodemographic variables

Frequency and percentage was used to determine the distribution of samples according to the socio-demographic variables

Table 1: Socio-demographic variables (N=60)

Sl. No	Socio-demographic variables	Category	Experimental group	Control group
1	Age	18-23 years	60%	56.7%
		24-29 years	40%	40%
		30-35 years	0%	3.3%
2	Educational status	Primary education	0%	3.3%
		High school education	10%	6.7%
		Higher secondary education	46.7%	43.3%
		Diploma	20%	26.7%
		Graduates and above	23.3%	20%
3	Occupation	Housewife	86.7%	86.7%
		Professionals	13.3%	13.3%
4	Religion	Hindus	53.3%	53.3%
		Christians	46.7%	46.7%
5	Type of family	Nuclear family	80%	83.3%
		Joint family	20%	16.7%
6	Area of residence	Rural area	100%	100%
		Urban area	0%	0%
7	Income per month	Less than 1500 rupees	60%	56.7%
		1500-3000 rupees	23.3%	30%
		Greater than 3000 rupees	16.7%	13.3%

3.2 Clinical data

Frequency and percentage was used to determine the distribution of samples according to the clinical data

Table 2: Clinical data (N=60)

Sl. No.	Clinical data	Category	Experimental group	Control group
1	Mode of onset of labour	Spontaneous	33.3%	20%
		Induced	66.7%	80%
		Augmented	0%	0%
2	Mode of termination of labour	Spontaneous	73.3%	70%
		Vacuum extraction	13.3%	16.7%
		Forceps delivery	10%	6.7%
		Caesarean section	3.3%	6.7%
3	Duration of active phase of labour	less than 5 hours	60%	63.3%
		5-6 hours	40%	36.7%
4	Gestational age	<39 weeks	70%	56.7%
		>=39 weeks	30%	43.3%

3.3 Comparison of the effect of warm compress on pain perception among primigravida mothers in experimental and control group

It was analyzed by using the Mann-Whitney U test.

Table 3: Comparison of the effect of warm compress on pain perception among primigravida mothers in experimental and control groups (N=60)

	Pain	Experimental group		Control group		Z	P
		F	%	F	%		
Pre-test	Mild	0	0.0	0	0.0	1	0.31
	Moderate	30	100.0	29	96.7		
	Severe	0	0.0	1	3.3		
Post-test 1	Mild	19	63.3	0	0.0	5.27**	0.00
	Moderate	11	36.7	27	90.0		
	Severe	0	0.0	3	10.0		
Post-test 2	Mild	0	0.0	0	0.0	6.06**	0.00
	Moderate	30	100.0	7	23.3		
	Severe	0	0.0	23	76.7		
Post-test 3	Mild	0	0.0	0	0.0	7.43**	0.00
	Moderate	30	100.0	1	3.3		
	Severe	0	0.0	29	96.7		
Post-test 4	Mild	0	0.0	0	0.0	6.49**	0.00
	Moderate	25	83.3	0	0.0		
	Severe	5	16.7	30	100.0		

Z: Mann-Whitney U Test, **Significant at 0.01 Level F: Frequency

There is a significant difference in the level of pain perception after warm compress between the primigravida mothers of experimental group and control group in the post-test 1 ($Z = 5.27$ and $p<0.01$), post-test 2 ($Z = 6.06$ and $p<0.01$), post-test 3 ($Z = 7.43$ and $p<0.01$) and post-test 4 ($Z = 6.49$ and $p<0.01$).The research hypothesis H_1: 'There is a significant difference in the level of pain perception after warm compress between the primigravida mothers of experimental group and control group' was accepted. This result was supported by a quasi-experimental study which was conducted to assess the effectiveness of warm compress on selected areas of women in labour in Bangalore. This study revealed that the experimental group had a reduction in pain and experienced comfort than the control group at 0.05 level of significance [9].

3.4 Association of pretest pain score with selected socio-demographic variables

The association between pain perception during first stage of labour among primigravida mothers with selected socio-demographic variables was analyzed by using an independent t-test.

Table 4: Association of pretest pain score with selected demographic variables (N=60)

Variables		Mean	S.D	N	T	P
Age	18-23 years	5.2	0.7	35	2.88**	0.00
	24-35 years	4.6	0.6	25		
Educational status	Upto Higher Secondary	5.1	0.7	33	1.64	0.10
	Above Higher Secondary	4.8	0.8	27		
Occupation	Housewife	5.0	0.7	52	2.44*	0.01
	Professional	4.4	0.5	8		
Religion	Hindu	5.0	0.8	32	0.55	0.58
	Christian	4.9	0.7	28		
Type of family	Nuclear family	5.0	0.7	49	0.65	0.52
	Joint family	4.8	0.9	11		
Income per month	<1500	5.1	0.7	35	1.69	0.09
	>= 1500	4.8	0.7	25		

**Significant at 0.01 level, *Significant at 0.05 level

There is a significant association between pretest pain score and selected demographic variables such as age (t=2.88, $p<0.01$) and occupation (t=2.44, $p<0.05$). The research hypothesis H_2: 'There is a significant association between the level of pain perception during first stage of labour among primigravida mothers and selected demographic variables' was accepted for the socio-demographic variables such as age and occupation. The results of this study were contradictory with another study which was conducted to assess the effect of intermittent local heat and cold on pain intensity and childbirth outcomes in nulliparous women in Iran shows that there were no significant differences in demographic and midwifery characteristics and the baseline pain between two groups [10].

4. Conclusion

Warm compress was proved to be effective in reducing pain during first stage of labour among primigravida mothers. In this study, the findings suggested that there was a significant difference in the level of pain perception after a warm compress between the primigravida mothers of experimental group and control group. The present study supports the research hypothesis H_1: 'There is a significant difference in the level of pain perception after warm compress between the primigravida mothers of experimental group and control group'.

The study findings revealed that there was a significant association between pretest pain score and demographic variables like age and occupation. The present study supports the research hypothesis H_2: 'There is a significant association between the level of pain perception during first stage of labour among primigravida mothers and selected demographic variables for the variables such as age and occupation. Hence the study concluded that the warm compress is one of the effective, simple, non-invasive, cost-effective methods having no side effects on mother or infant and it is an effective non-pharmacological method of treatment to reduce labour pain, to increase the coping ability of the women during labour and for relaxation.

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6. Conflict of Interest

Not available

7. Financial Support

Not available

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