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A study to assess the effectiveness of hot application on dimple of venous on reduction of intensity of labour pain among primigravid mothers

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Abstract
Pain during labour is different for every woman. Although labour is often thought of as one of the painful events in human experience, it ranges widely from woman to woman and from pregnancy to pregnancy and heat therapy benefits by helping to relieve muscle spasms, increases circulation of blood lymph which benefits cellular nutrition, oxygenation and detoxification and has a sedating and relaxing effect. The quantitative study aims to evaluate the intensity of labour pain, effectiveness of hot application on labour pain among primigravid mothers and to find out association between the pre-test mean score of labour pain with selected demographic variables. The study was conducted at S.D.H Danapur, using pre-test post-test Control group design. The data was obtained using interview schedule and numerical pain scale from 60 samples, 30 each in Experimental and Control group, analysed and interpreted considering the objectives and hypothesis of the study using descriptive and inferential statistics. Among Experimental group 96.67% had moderate pain and 3.33% had severe pain whereas in Control group 25.0% had moderate pain and 75.0% had severe pain. This shows that there is decrease in intensity of labour pain after the hot application on dimple of venous. The calculated paired 't' value 3.92 at $p<0.05$ significant level between pre-experimental and Control group. On other hand 't' value is 2.67 at $P<0.05$ significant level between post-experimental and Control group. post-test was 0.548*which is greater than the table value 2.00 at 0.05 level of significance. This shows that hot application on dimple of venous was effective in reduction of intensity of labour pain. The chi-square values showed significant association between pre-test scores of labour pain with selected demographic variables.

Keywords: Labour pain, heat therapy, hot application, primigravid mothers, intensity, experimental group, control group, statistical analysis, demographic variables, chi-square values

Introduction

Labor pain is one of the most severe pains a woman experiences in her life, which occurs with uterine contractions, cervical dilation, and effacement. Adequate knowledge about the labor and delivery process can impart a sense of emotional well-being and confidence to ensure successful labor. During labor, increased anxiety enhances the pain perception, increases labor duration and catecholamine secretion which reduces blood flow in the uterus. This decreases the uterine contractions and increases labor duration [1].

Childbirth is one of the most marvelous and memorable segments in a woman's life. It does not really matter if the child is the first, second or the third one. Each experience is unique and calls for a celebration. Natural childbirth is a beautiful experience with many safe options and benefits. Women dream of the perfect birth. The fear and anxiety about childbirth often prevents most women from enjoying this experience. However, an adequate knowledge about signs of labor and delivery in general can impart a feeling of confidence and a sense of emotional wellbeing, very crucial in ensuring a successful labor. Childbirth is a painful experience for almost all women. The pain experienced during labour has multiple physiological and psychosocial dimensions and its intensity can vary greatly from one woman to another. Labour pain involves complex neuro behavioral responses to allogeneic stimuli and provides a personal and unique experience to individual women [2].

Every woman's birth experience is personal to her. But most women agree that the contractions feel stronger as labour progresses. The pain which we feel when we get hurt is our body's way of warning us that something's wrong. The pain of contractions is usually a sign that the body is doing the right thing Wide arrays of non-pharmacological pain relief measures, as well as pharmacological interventions, are presently available to women in labour. Relaxation, breathing techniques, positioning/movement, massage, hydrotherapy, hot/cold therapy, music, guided imagery, acupressure, and aromatherapy are some self-help comfort measures women may initiate during labour to achieve an effective coping level for their labour experience. Women are encouraged to employ a variety of simple, non-pharmacologic techniques to reduce or modify labour pain with no purpose of causing harmful effects to the mother or infant [3].

Epidural and spinal analgesic techniques are the gold standards for pain relief during labour and delivery. However, they may be associated with an increased risk of instrumental vaginal delivery and caesarean section. Hence, epidurals for labour pain should be provided only settings that are equipped for instrumental delivery and emergency caesarean section. Non-pharmacological interventions (e.g. immersion in water, relaxation, acupuncture, massage) appears to be safe and may be effective and applied in under resourced settings and or at stages of labour. One of the Non pharmacological methods in labour pain reduction is heat therapy. Using heat with various means during labour is simple, cheap and available and it does not need previous skills and if it used correctly, it has few side effects. This was till now not conducted in Bihar. The need of the study to evaluate the intensity of labour pain effectiveness of hot application on labour pain among primigravida mothers [4].

Labour pain is one of the most severe pains a woman experiences in her life, which occurs with uterine contractions, cervical dilation, and effacement. Adequate knowledge about the labour and delivery process can impart a sense of emotional well-being and confidence to ensure successful labour. During labour, increased anxiety enhances the pain perception, increases labour duration and catecholamine secretion which reduces blood flow in the uterus. This decreases the uterine contractions and increases labour duration. The release of catecholamines further adds to the emotional stress and causes a delay in the labour process, which in turn increases the demand for caesarean section from mothers [5].

Statement of the problem

Effectiveness of hot application on Dimple of Venous on reduction of intensity of labour pain among primigravid mothers

Objectives

1. Assess the Intensity of Labour Pain among Primigravid Mothers in Experimental and Control Group during the first stage of labour.
2. Compare the Effectiveness of Hot Application on Dimple of Venous during first stage of Labour among Primigravida Mothers in Experimental and Control Group.
3. Find out the association between Effectiveness of hot application on Dimple of Venous on reduction of intensity of labour pain among primigravid mothers with the socio demographic variables of Experimental and Control Group.

Hypothesis (H0)

H0 - There will be no significant difference in the Effectiveness of hot application on Dimple of Venous on reduction of intensity of labour pain among primigravid mothers in the Experimental group after the Hot Application.

Methodology

Research approach

For the present study, quantitative research approach is adopted to assess the "Effectiveness of hot application on Dimple of Venous on reduction of intensity of labour pain among primigravid mothers."

Research design

For the present study Non-equivalent Pre-Test Post-Test Control Group Design is used

Research design

Table 1: A Non-Equivalent pre-test post-test Control Group Design

Group	Pre-Test	Hot application	Post Test
Experimental	O_1	X_1	O_2
Control	O_3	Routine care	O_4

Variables under study

Independent variable

In this study, hot application is the independent variable.

Dependent variables

In this study, Pain is the Dependent Variable.

Demographic variable

In this study, the Demographic variables are Age, Gender, Marital status, Religion, Areas of residence, Mother education & Gestation age of Mother.

Research setting

The study was conducted in Sub divisional Hospital, Danapur, Patna.

Population

In this study population are Primigravid Mothers.

Sample size

The sample size of the study is 60 Primigravid Mothers.

Sample technique

Purposive sampling technique was used to select the sample.

Sampling criteria

The sample will be selected based on the following criteria:

Inclusion criteria

1. Primigravid Mothers in first stage labour.
2. Primigravid Mothers who are willing to participate.
3. Primigravid Mothers with cervix dilatation of $\geq$ 4cm.
4. Primigravid Mothers with Gestational Age $\geq$ 38 weeks.

Exclusion criteria

1. High risk mothers (such as high blood pressure, gestational diabetes(A1), sexually transmitted diseases, being HIV positive, kidney diseases, autoimmune diseases, thyroid diseases, abnormal fetal position, heart disease).
2. Mothers undergone L.S.C.S.

Method of Data Collection

After taking the legible permission from the eligible authority of SDH, Danapur for conducting the research at SDH; the Primigravida mothers were selected as per the laid down criteria. The Primigravida mothers were explained about the intervention for 10 minutes in details before taking their consent.

5 minutes was allocated to the Primigravida mothers to go through the Information sheet (PIS), followed by Informed consent on PICF which will take another 5 minutes. Hot application through hot water bag at 46^0C- 48^0C was given to the Primigravida mothers 3 times for 10 minutes each at 20 minutes interval in Experimental group while only routine & standard care was given to the Primigravida mothers in Control group. During the routine & standard care the primigravida mothers were provided with the intra natal care such as maintaining the hygiene, position & nutrition; medicines, continuous monitoring of the maternal and fetal condition by the partograph, vital signs & breathing exercises. Before & after the intervention Pre-Test & Post- Test was done for 10 minutes each. The total phase in Experimental & Control Group was of 2 hours each.

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Tools and techniques

Tools – Consists of 2 Parts.

Part 1- Deals with the sociodemographic variables such as age, education, religion, marital status, time of conception, type of family, area of residence, occupation, family income, diet, regular antenatal visits.

Part 2- Deals with the Numerical Pain Rating scale.

Scoring Method

The scale ranges from 0 – 10. Zero indicates "no pain" 1-3 indicates mild pain, 4-6 indicates moderate pain and 7-10 indicates severe pain.

Data collection process

Data collection is the gathering of information needed to address research problem. Formal written permission was obtained by the competent authority of Danapur Sadar Hospital, Patna, Bihar

The data collection for the study was carried out from 19.09.2023 to 17.10.2023. Before commencing the task of data collection, the self-structured tool was edited by the expert. Good rapport was established with the sample. they were assured that their response was kept confidential and will be used for research purpose. Written consent was taken from the lactating mothers. The sample consist of 60 sample was selected on the basis of inclusion criteria and exclusion criteria by using Purposive Sampling Technique.

Analysis and interpretation

The data obtained using both descriptive and inferential statistics. Statistical significance of effect of hot application on reduction of intensity of labour pain was analysed using paired „t" test and association between pre test scores of labour pain with selected demographic variables were analysed using Chi square test.

Results

Table 3: Frequency and percentage distribution of the primigravid mothers in Experimental and Control group based on age. N=30+30

S. No	Demographic variables	Experimental Group		Control Group	
		Frequency (f)	Percentage	Frequency (f)	Percentage
1.	**Age [In Years]**				
	< 20	5	16.7	6	20
	21-30years	25	83.3	24	80
	Total	**30**	**100%**	**30**	**100%**

Table No-3 Shows the Distribution of primigravid mothers in Experimental and Control group based on the age. It reveals that majority of the mothers in Experimental group i.e 83.33% were between 21-30 years and 16% of mother below 20 years of age in Control group, majority of mother 80% were between 21-30 years and 20% were below 20 years.

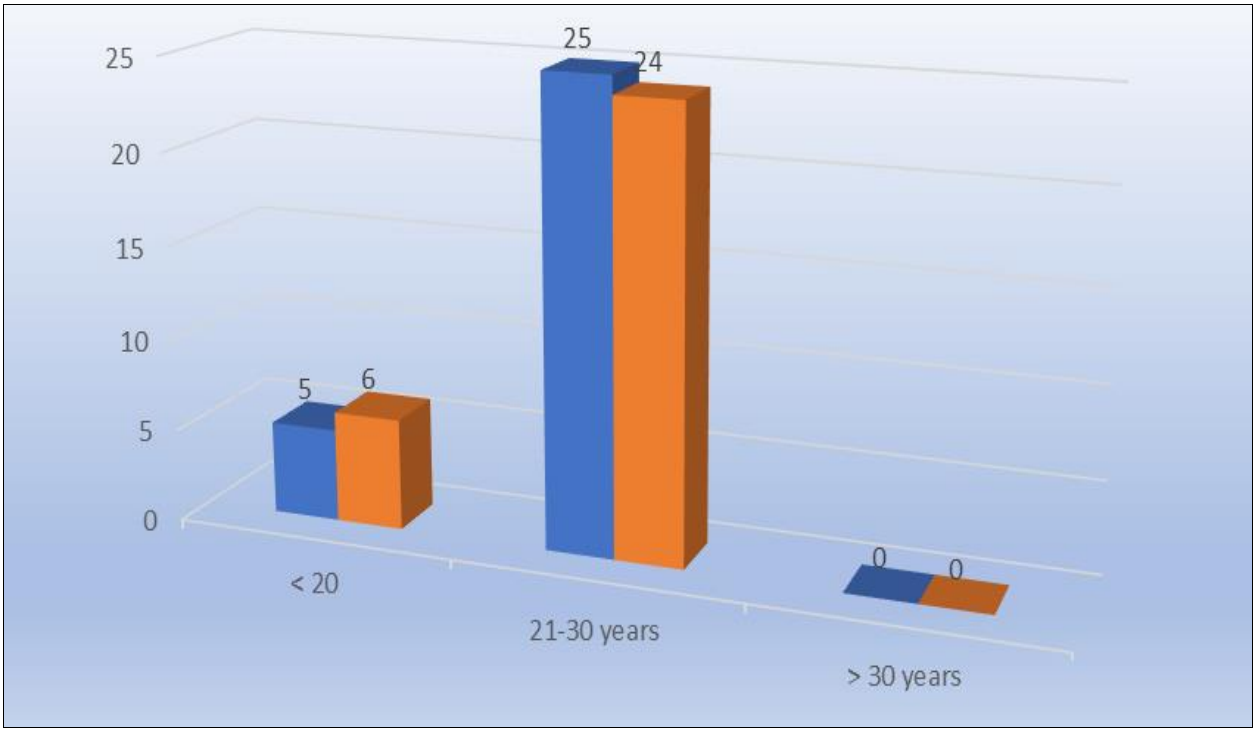

Fig 3: Distribution of the primigravid mothers in Experimenta and Control Group based on Age.

Table 4: Frequency and percentage distribution of the primigravid mothers in Experimental and Control group based on Educational Status. N=30+30

S. No	Demographic variables	Experimental Group		Control Group	
		Frequency (f)	Percentage	Frequency (f)	Percentage
2.	**Educational Status**				
	Informal Education	7	23.3	8	26.67
	Primary Education	6	20.0	9	30.0
	Higher Secondary	11	36.6	4	13.33
	Under Graduate	5	16.6	3	10.0
	Post Graduate	1	3.3	2	6.67
	Professional Education	-	-	4	13.33
	Total	30	100%	30	100%

Table No-4 Shows the Distribution of primigravid mothers in Experimental and Control group based on Educational Status. It reveals that majority of the mothers in Experimental group i.e 36.6% were higher secondary education 23.33% had informal education, 20% had primary education, 16.67% each were undergraduates, 3.33% were postgraduates and none of mothers had professional education.

in Control group, majority of mother 30% had primary education 26.67% had informal education, 13.33% had higher secondary education, 13.33% had professional education and 10% were undergraduates, 6.67% were postgraduates' education in Control group.

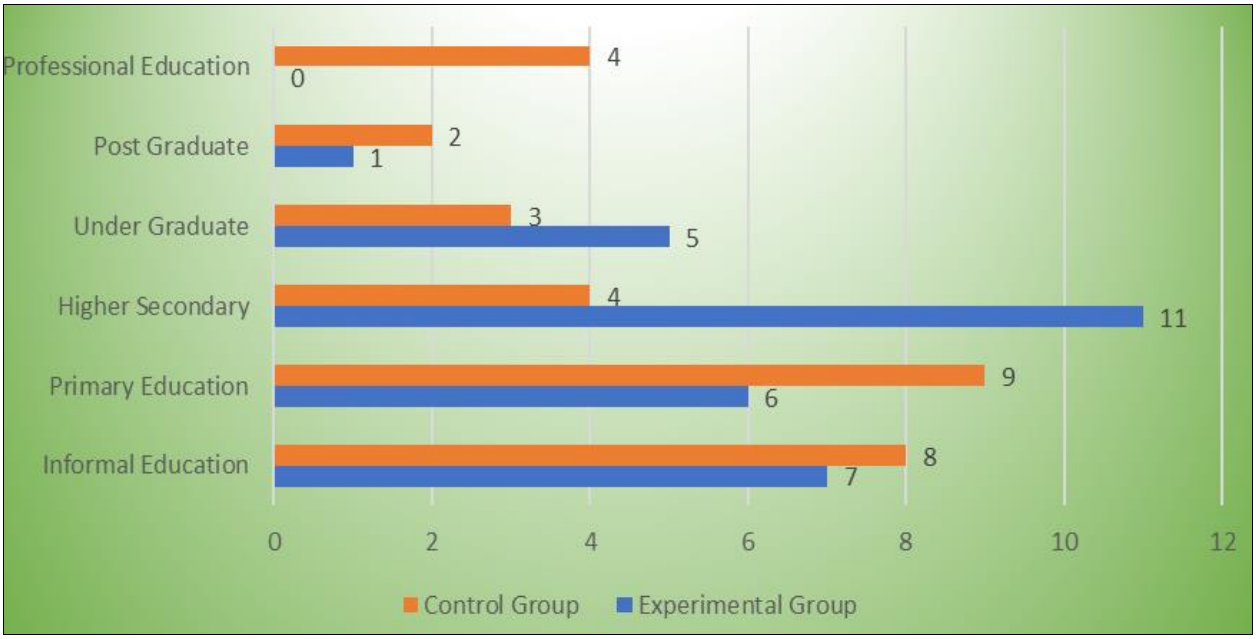

Fig 4: Distribution of the Primigravid Mothers in Experimental and Control Group based on Education Status

Table 5: Frequency and percentage distribution of the Primigravid Mothers in Experimental and Control group based on occupation. N=30+30

S. No	Demographic variables	Experimental Group		Control Group	
		Frequency (f)	Percentage	Frequency (f)	Percentage
3.	**Occupation**				
	Home Maker	22	73.3	24	80.0
	Daily Wager	3	10.0	2	6.6
	Private Employee	2	6.6	1	3.3
	Government Employee	-	-	-	-
	Self-employed/Business	3	10.0	3	10.0
	Total	30	100%	30	100%

Table No-5 Shows the Distribution of primigravid mothers in Experimental and Control group based on Occupation. It reveals that majority of the mothers in Experimental group i.e 73.3% were home maker 10% were daily wagers, 6.67% were private employees, 10% were self-employed or involved in business and none were government employees in Experimental group.

In Control group, majority of mother 80% were homemakers, 6.67% were daily wagers, (3.33%) were private employees, 10% were self-employed or involved in business and none were government employees in Control group.

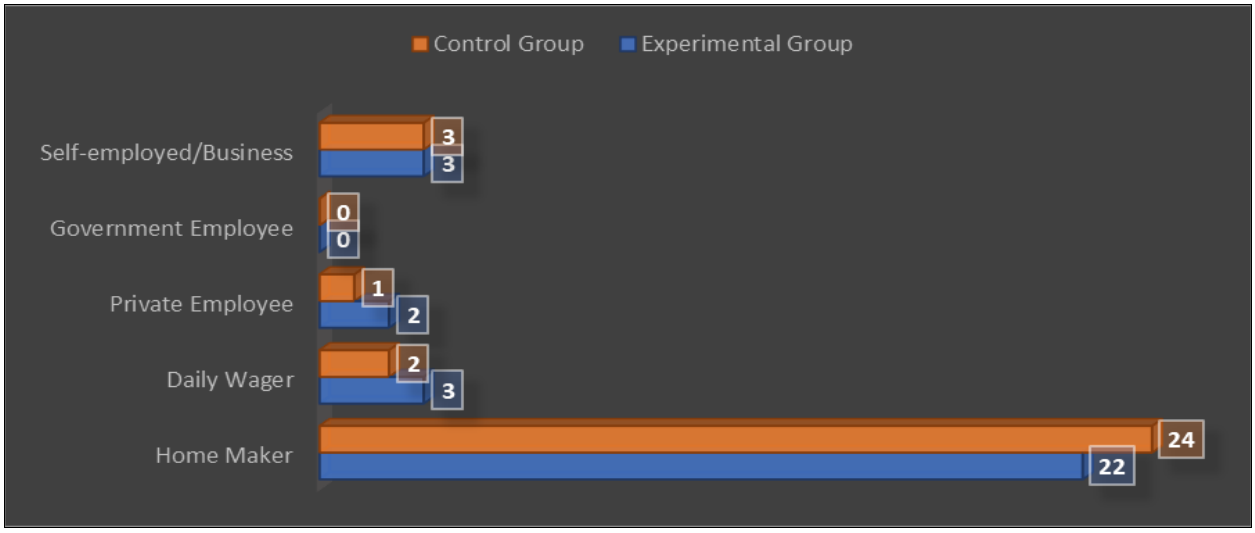

Fig 5: Distribution of the primigravida mothers in Experimental and Control Group based on Occupation Status.

Conceptual Frame Work Based on Melzeck and Kolcabo comfort Modified Theory

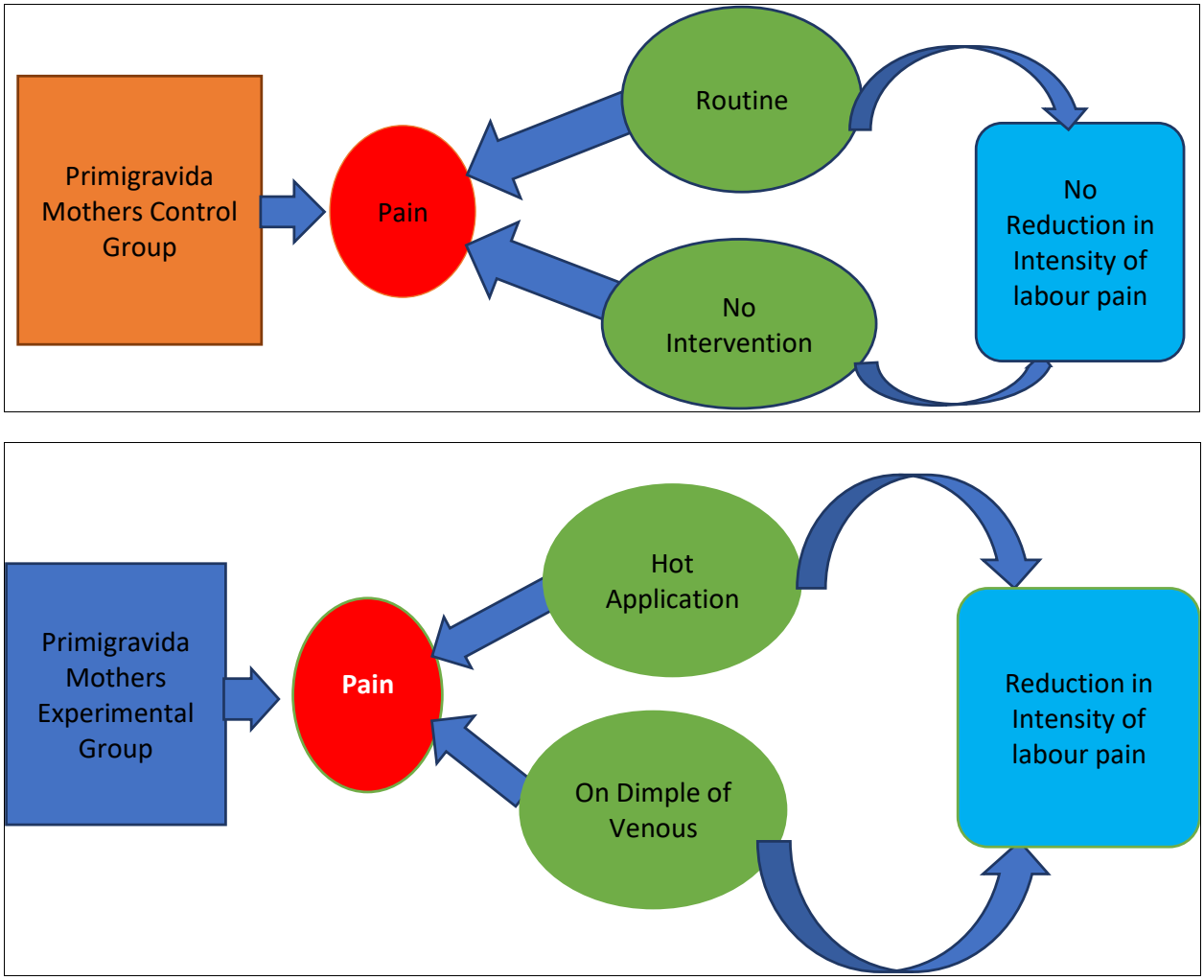

Fig 1

Discussion

The finding of the present study revealed that 75% mothers had severe pain 25% mothers had moderate pain and none of mothers had mild pain, in pre-experimental group.

The finding of the present study revealed that, the pain intensity of primigravida mothers during the first stage of labour was assessed in a pre-control group. It has been found that about 100% mothers had the worst imaginable pain including the chronic pain, and none of the mothers had either mild or moderate pain in a given study.

The finding of the present study revealed that the pain intensity of primigravida mothers during the first stage of

labour was assessed in a post-experimental group. It has been found that 96.67% mothers had the moderate pain including the chronic pain 3.33% had severe pain and none of the mothers had either mild or no pain in a given study.

The finding of the present study revealed that the pain intensity of primigravida mothers during the first stage of labour was assessed in a post-control group. It has been found that about 100% mothers had the worst imaginable pain including the chronic and about none of the mothers had either mild or moderate pain in a given study.

Conclusion

Hot application has decrease the level of intensity of labour pain among primigravida mothers in Experimental group. Hence, the researcher strongly suggests that the nurse midwife should adopt this intervention in their clinical practice.

Nursing Practice

The present study recommended the following Nursing Practice;

1. Nurses can inspire and help mothers and their family to use hot application as it plays a vital role in pain management during labour and birth.
2. Nurses can also apply hot application on the dimple of venous to the primi gravida mothers or multi gravida mothers, who is admitted in labour room.
3. as it is simple, effective, non-invasive and cost-effective method having no side effects on mother and infant.

Nursing Education

The present study recommended the following implication in Nursing Education;

1. Nursing student and staff should be trained by organization of workshop or seminar for creating awareness regarding the apply hot application on the dimple of venous.
2. Written manual guidelines and protocol can be developed regarding hot application.
3. Nurse educators should consider inclusion of complementary and alternative therapies in nursing curricula encouraging the students which in turn motivate public enthusiasm for the use of these therapies.

Nursing adminstration

The present study has following implication in Nursing administration;

1. Nursing administration should formulate policies for labour room in hospital.
2. Nursing administration should be developing protocols and policies regarding hot application for the labour room staff.
3. Nursing administration can organize In-service training programme for the nurses to create awareness about hot application.
4. Nurse Managers should give support for in service education programmes, training programmes and necessary facilities for clinical practice on hot application on dimple of venous.

Nursing research

Limited studies have been conducted on effect of complementary and alternative therapies on labour so far, so more researches should be conducted which helps in less use of pain medication, lowers rates of caesarean section and increases the overall satisfaction of women with their birth experiences which proves complementary therapies (like hot application) gives more satisfaction.

1. The finding of the study will help the professional nurses and students to develop knowledge by providing a base.
2. The study provide baseline for conducting similar studies in different setting

Recommendation for further research

On the basis of the present study the following recommendation have been made for further study:

- the study can be replicated on a large sample to generalize the findings.
- A similar study can be conducted by including practical aspect.
- A similar study can be done by using various teaching method.
- Based on study findings, intervention should be provided to all nursing students by workshop or seminar or in service education to enhance the knowledge level
- A similar study can be undertaken with Control group design.

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