"A study to assess the effectiveness of warm compress on lumbar and sacral region during first stage of labour in reducing labour pain among parturients in selected hospitals at Udaipur, Rajasthan"

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Abstract:

Background: Labour pain perception differs from women to women. It is an irregular phase, where the pain occurs in a cyclic form, firstly it peaks and then decreases. The intensity and the frequency of the pain aggravates as the labour progress. Researcher conducted A study to "A study to assess the effectiveness of warm compress on lumbar and sacral region during first stage of labour in reducing labour pain among parturients in selected hospitals at Udaipur, Rajasthan"

Materials and methods: The researcher adopted a quantitative experimental research approach with true experimental pre-test post-test only research design. This study aimed at evaluating effectiveness of an intervention (warm compress) on labour pain among 60 parturients who are in labour in selected Hospital of Udaipur Rajasthan. In this study samples were drawn by using simple random sampling technique (Lottery method). Data was collected by using Universal pain assessment scale. The data obtained were analyzed and interpreted in the light of objectives and hypothesis using both descriptive and inferential statistical in terms of frequency, percentage and chi-square.

Results: Result revealed that the calculated 't' value for the level of labour pain is 22.47, which is significantly higher than the table value at 0.05 level. Hence research hypothesis H_1 is accepted, in control group The calculated 't' value for the level of labour pain is 1.09 which is lesser than the table value at 0.05 level. Hence research hypothesis H_1 is accepted. This study proved that in experimental group there was statistically significant association between the pre-test pain scores with their selected socio-demographic variables such as Age in Years $\chi^2 = 17.04$, type of family $\chi^2 = 22.71$ Dietary Pattern $\chi^2 = 20.55$, Educational Status $\chi^2 = 26.08$, Occupation $\chi^2 = 19.98$, Family Monthly Income $\chi^2 = 18.23$ and Area of Residence $\chi^2 = 16.01$ were found to be significantly associated with pre – test score at 0.05 level. Hence research hypothesis H_2 is accepted where as in control group socio-demographic variable such as Age in Year $\chi^2 = 20.18$, Family Monthly Income $\chi^2 = 16.08$, Area of Residence $\chi^2 = 13.55$ were found to be significantly associated with pre – test pain score at 0.05 level. Hence research hypothesis H_2 is accepted.

Conclusion: This study concluded that there is reduction in level of labour pain among parturients which indicates that the warm compress was effective. The socio-demographic variables of parturients are significantly associated with the pre-test level of labour pain score.

Key Words: Evaluate, Effectiveness, warm compress, labour pain, parturients who are in labour.

I. Introduction

Labour pain is a safe and natural method that can have an extremely positive effect in preparing the mother and the baby for the birth. The pain of labour is severe but despite this, its memory diminishes with time.

Labour pain has two components Visceral pain which occurs during the early first stage and second stage of childbirth and somatic pain which occurs during the late first stage and second stage. Warm compression is very simple to apply with no undesirable effect on mother and foetus as well as it helps the mother by decreasing labour pain and improve maternal satisfaction. Heat stimulates heat receptors in derma and deeper tissues and different impulses neutralize themselves at the level of spinal cord and lead to closure of the gate and subsequently impede neural impulses to reach the brain.

A randomised controlled study was conducted on perineal preservation and hot application during the second stage of labour to examine the effectiveness of hot packs. Out of 71 samples the experimental group (n=36) received hot packs and the control group (n=35) did not. The result showed that 70% of the recipients of

hot packs felt pain relief and 80% said they provide comfort. In the experimental group 70% of women required no suturing. 8% had first degree tear, 17% had second degree tear and 3% had episiotomy. Whereas in control group 54% of women did not require suturing, 23% had second degree tear, 6% had episiotomy and 17% had first degree tear.

OBJECTIVES OF THE STUDY
1. To assess the level of labour pain during first stage of labour.
2. To evaluate the effectiveness of warm compress on lumbar and sacral region in reducing labour pain during first stage of labour.
3. To find out the association between pre-test level of labour pain during first stage of labour with their selected socio demographic variables.

II. Materials and Methods:

Quantitative Experimental research approach was used for the present study. This approach would help the researcher to *effectiveness of warm compress on lumbar and sacral region during first stage of labour in reducing labour pain among parturients in selected hospitals at Udaipur (Raj.).*

Research design: true experimental pre-test post-test only design.
Research Settings: The study was conducted in the Geetanjali hospital and Pacific hospital Udaipur Rajasthan.
Study duration: 15th March, 2021 to 30th March, 2021
Sample Size: 60 parturients.
Population: In the present study, the population consists of mothers who are in labour in Geetanjali hospital and Pacific hospital at Udaipur Rajasthan.
Sampling Technique: simple random sampling technique: lottery method.

Inclusion criteria:
- Mothers who were available during the period of data collection.
- Mothers who were willing to participate in this study.
- Mothers who were able to cooperate and communicate easily.
- Primigravida mothers above 37 weeks of gestation.

Exclusion criteria: -
- Gestational age less than 36 weeks.
- Mothers with complication like gestational hypertension, diabetes mellitus, convulsion, etc.
- Mothers with malpresentation and mal position.
- Mothers who were all multi gravida.

Procedure Methodology: Formal permission was obtained from the nursing superintendent of hospital setting at Udaipur. The main study was done in both Geetanjali Hospital and Pacific Badela Hospital Udaipur Rajasthan from 15th March, 2021 to 30th March, 2021. The simple random sampling technique (lottery method) was used to collect the sample. The objective and purpose of the study were explained and confidentially was ensured. Researcher obtained informed written consent form from each study participants. The information regarding the demographic data and other variable were collected from the parturients by interview and from the health records. 60 samples were selected for study. Researcher administered tool to obtained pre-test score. Pre-test was done to observe the level of labour pain. The average time was taken for each participant was 40 minutes in scoring time was 2 minutes. The language was found to be clear. Based on pre-test score the nursing intervention was administered by the researcher to each participant. the parturients who are in labour in the experimental group were given warm compress for 10 minutes, for 4 consecutive uterine contraction after the 7 cm dilatation of cervix. The parturients who were in labour in the control group were given only routine care. Post-test was done immediately in both experimental and control group. Researcher didn't find any problem to conduct pilot study. Hence researcher carried same tool to conduct main study as per the expert suggestion. The data collection procedure was conducted by maintaining social distancing and followed government guidelines as per covid-19 situation. Hence researcher carried same tool to conduct main study as per the expert suggestion.

- **Statistical analysis:** The obtained data were analyzed in terms of objectives of the study using descriptive and inferential statistics. The plan for data analysis was as follows Organization of data in master sheet. Obtained data were analyzed in terms of frequencies and percentages.

Description Statistics: Description of demographic characteristics. Mean, median, SD and mean percentage is used to describe the compare the pre-test and post-test level of parturients who were in labour.
Inferential Statistics: Paired 't' test was used to compare the pre-test and post-test level comparing pre-test post-

test level of labour pain among experimental and control group.
Chi square test was used to find out the association of pre-test pain score among experimental group and control group with their selected socio-demographic variables.

III. Results

Section A: Frequency and percentage distribution of socio-demographic variables.
Section B: Level of labour pain among experimental and control group.
1. Level of labour pain in experimental group.
2. Level of labour pain in control group.
Section C: Effectiveness of nursing intervention on level of labour pain among parturients who are in labour in experimental & control group.
1. Comparison of labour pain scores in experimental group.
2. Comparison of labour pain in control group.
Section D: Association between pre-test pain score of socio-demographic variables in experimental &control group.
1. Description of experimental group respondent by pre-test pain scores & socio-demographic variables.
2. Description of control group respondent by pre-test pain scores & socio-demographic variables.

SECTION -A
FREQUENCY AND PERCENTAGE OF SOCIO- DEMOGRAPHIC VARABLES
TABLE 1: SOCIO- DEMOGRAPHIC VARIABLES

N=60

S. No	Variables	Experimental		Control	
		Frequency	Percentage	Frequency	Percentage
1.	**Age in years:**				
	19 to 21	3	10%	2	6.67%
	22 to 24	7	23.34%	6	20%
	25 to 27	10	33.33%	12	**40%**
	28 and above	10	33.33%	10	33.33%
2.	**Type of family:**				
	Nuclear	18	**60%**	14	46.66%
	Joint	12	40%	16	**53.34%**
3.	**Dietary pattern:**				
	Vegetarian	19	**63.33%**	17	**56.66%**
	Mixed	11	36.67%	13	43.34%
4.	**Educational status:**				
	Non formal education	4	13.34%	1	3.34%
	Primary education	8	26.66%	6	20%
	Secondary education	9	**30%**	11	**36.66%**
	Senior secondary education	6	20%	9	30%
	Graduate and above	3	10%	3	10%
5.	**Occupation:**				
	Govt. employee	3	10%	4	13.34%
	Private employee	14	**46.66%**	10	33.33%
	Housewife	13	43.34%	16	**53.33%**
6.	**Family monthly income**				
	Less than Rs10,000/-	1	3.33%	2	6.67%
	Rs10,001 – 20,000/-	8	26.67%	9	30%
	Rs 20,001- 30,000/-	13	**43.33%**	11	**36.66%**
	Above Rs 30,000/-	8	26.67%	8	26.67%
7.	**Area of residence:**				
	Rural	11	36.67%	13	43.34%
	Urban	19	**63.33%**	17	**56.66%**

The data given in table 1 describes the frequency and percentage of experimental and control group of labour pain among parturients by age in years, type of family, dietary pattern, educational status, occupation, family monthly income, area of residence.

SECTION – B
LEVEL OF LABOUR PAIN AMONG EXPERIMENTAL & CONTROL GROUP
Table 2: Level of labour pain in experimental group

N=30

Levels of pain	Pain Score	Pre-test Frequency	Percentage	Post-test Frequency	Percentage
No Pain	0	0	0%	0	0%
Mild Pain	1-3	0	0%	0	0%
Moderate Pain	4-7	0	0%	09	30%
Severe Pain	7-9	18	60%	20	66.67%
Worst Pain Possible	10	12	40%	01	3.33%
Total		30	100%	30	100%
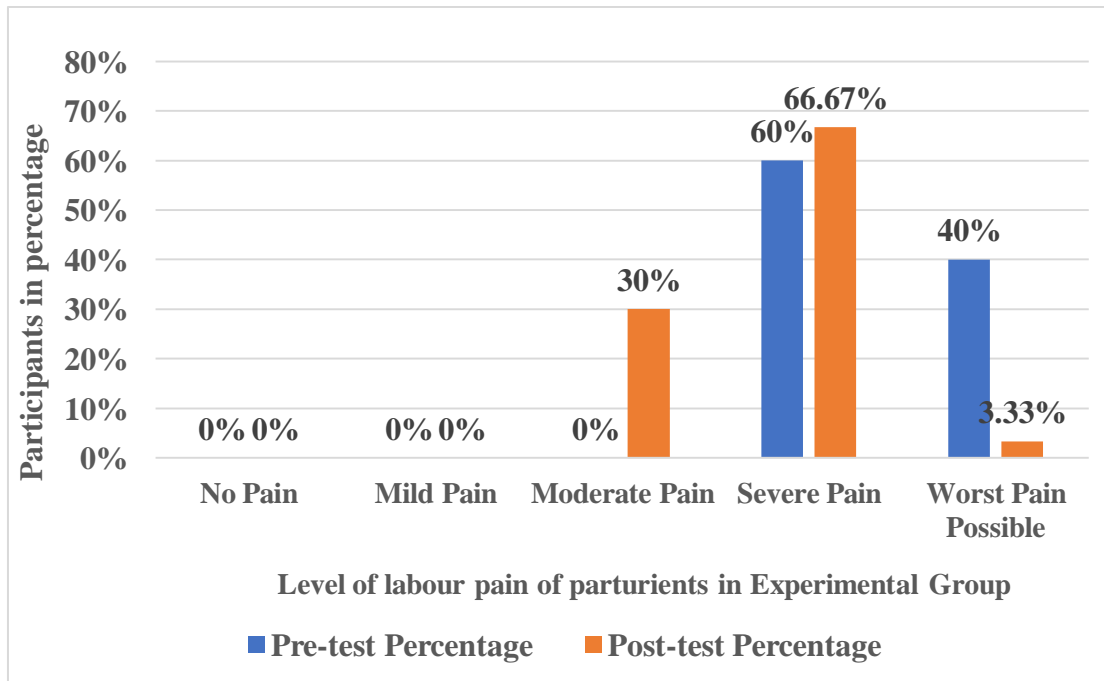
Figure – 1: Level of labour pain in experimental group

Table – 2 and Figure – 1: The above table – 2 Shows that in experimental group 18 participants (60%) had severe level of labour pain, 12 participants (40%) had worst level of labour pain in the pre – test whereas in the post – test after the intervention, 09 participants (30%) had moderate level of labour pain, 20 participants had severe level of labour pain and only 1 participant (3.33%) had worst level of labour pain.

Table – 3: Level of labour pain of parturients in Control Group

N=30

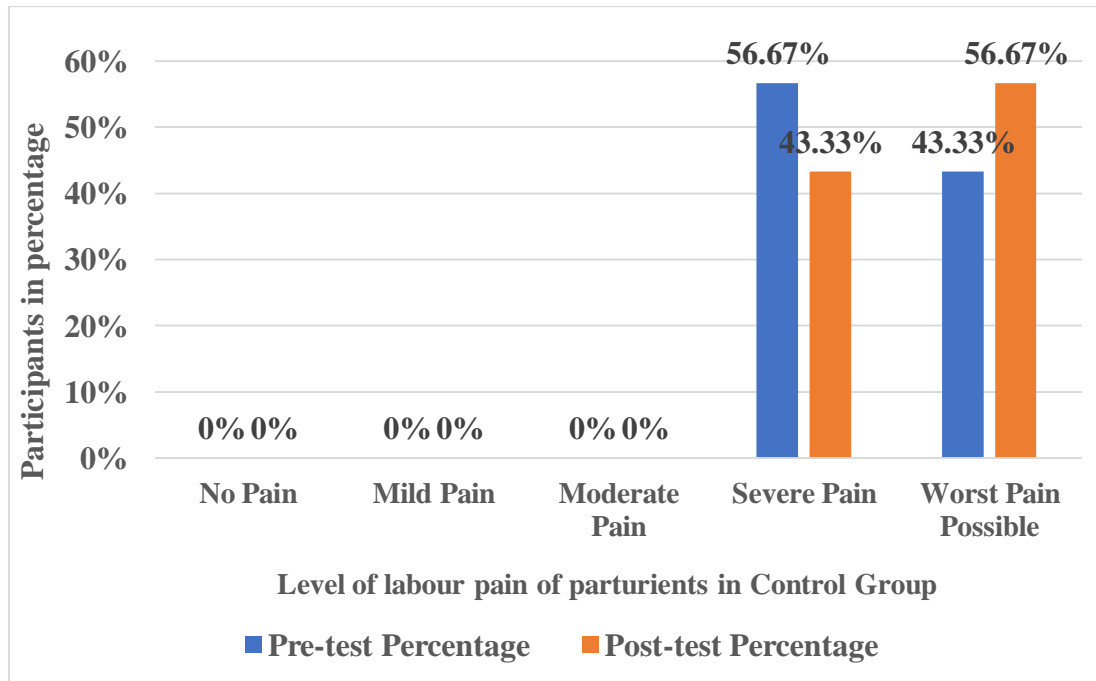| Levels of pain	Pain Score	Pre – test Frequency	Percentage	Post – test Frequency	Percentage
No Pain	0	0	0%	0	0%
Mild Pain	1 – 3	0	0%	0	0%
Moderate Pain	4 – 7	0	0%	0	0%
Severe Pain	7 – 9	17	56.67%	13	43.33%
Worst Pain Possible	10	13	43.33%	17	56.67%
Total		30	100 %	30	100%

Figure – 2: Level of labour pain of parturients in Control Group

Table – 3 and Figure – 2: The above table 3. Shows that in control group 17 participants (56.66%) had severe level of labour pain, and only 13 participants (43.33%) had worst level of labour pain in the pre – test whereas in post – test 13 participants 943.33%) had severe level of labour pain and only 17 participants (56.67%) had worst level of labour pain.

There is a significant difference level of labour pain of parturients who are in labour. Hence research hypothesis H_1 is accepted.

SECTION – C
EFFECTIVENESS OF WARM COMPRESS APPLICATION ON LEVEL OF LABOUR PAIN AMONG PARTURIENTS IN EXPERIMENTAL AND CONTROLGROUP.

Table- 4: Comparison of labour pain in Experimental Group

N = 30

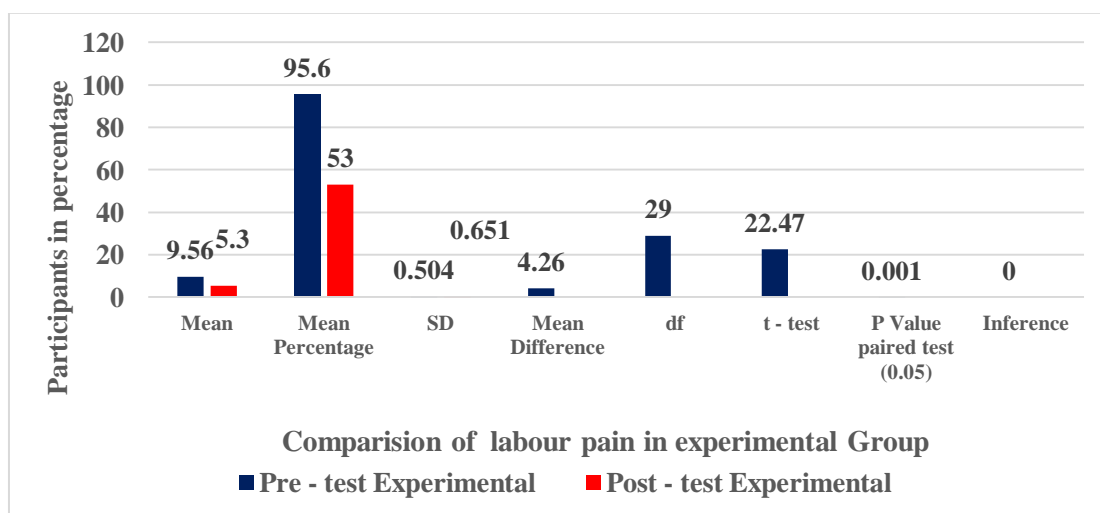|	Mean	Mean percentage (%)	SD	Mean difference	df	T – test	P value paired test (0.05)	Inference
Pre test Experimental	9.56	95.6	0.504	4.26	29	22.47	0.001	Significant
Post test Experimental	5.3	53.0	0.651					

Figure - 3: Comparison of labour pain in Experimental Group

Table 4 and Figure 3: In the experimental group, pre-test v/s post-test wise analysis shows thar in pre -test the mean obtained by the parturients was 9.56 with 95.6%, SD of 0.504 and in post-test the mean obtained by the parturients was 5.3 with the mean percentage of 53.0%, SD of 0.651, the mean difference is 4.26, the obtained 't' test is 22.47, P value is 0.001 and it is highly significant.

Table – 5: Comparison of labour pain in Control Group

N = 30

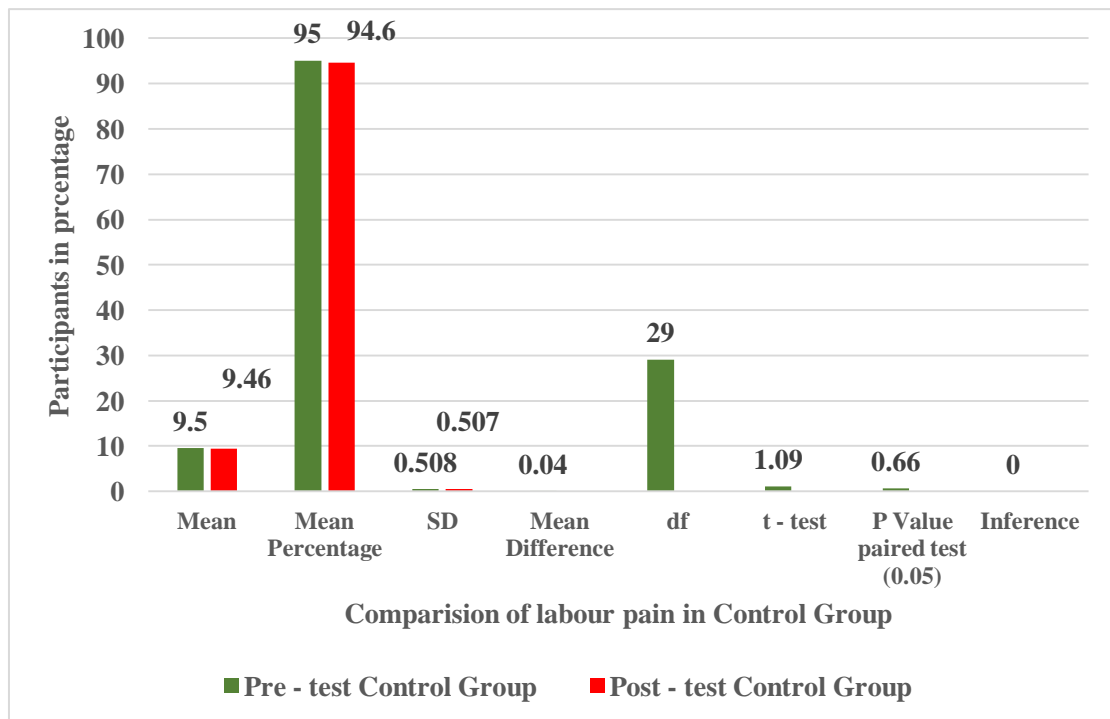|	Mean	Mean Percentage (%)	SD	Mean difference	df	T test	(p value paired test (0.05)	Inference
Pre test Control	9.5	95.0	0.508	0.04	29	1.09	0.66	Non-Significant
Post test Control	9.46	94.6	0.507					

Figure – 4: Comparison of labour pain in Control Group

Table 5 and Figure 4: In control group, pre-test v/s post-test wise analysis shows that in pre – test the mean obtained by the parturients was 9.5 with mean percentage of 95%, SD of 0.508 and in post – test mean obtained by the parturients was 9.46 with mean percentage 94.6%. SD of 0.507, the mean difference is 0.04, df 29. The obtained 't' test is 1.09, P value is 0.66 and it is non – significant.

The above finding clearly indicate that the warm compress application on labour pain was found to be effective in reducing the level of labour pain among parturients who are in labour with labour pain in experimental group than the control group who had undergone normal hospital routine measures.

SECTION- D
Association between pre-test pain score of socio-demographic variables in Experimental & Control group.

This section deals with analysis and interpretation of the data out the association between pre-test pain score with selected demographic variables like Age in year, Type of family, Dietary pattern, Education status, Occupation, Family monthly income and Area of residence.

A parametric chi-square test was used to describe the association between pre-test score with selected demographic variables.

1. Description of Experimental Group participants by Pre-test pain score & socio demographic variables.

The Chi -Square test carried out to determine the association between the pre – test and socio – demographic variables such as age in year, type of family, dietary pattern, educational status, occupation, family monthly income, and area of residence.

Socio – demographic variables such as Age in Years χ^2 = 17.04, type of family χ^2 = 22.71 Dietary Pattern χ^2 = 20.51, Educational Status χ^2 = 26.08, Occupation χ^2 = 19.98, Family Monthly Income χ^2 = 18.23 and Area of Residence χ^2 =16.01 were found to be significantly associated with pre – test score at 0.05 level. Hence research hypothesis H_2 was accepted.

2. Description of control group participants by pre – test pain score and socio demographic variables.
The Chi -Square test carried out to determine the association between the pre – test and socio – demographic variables such as age in year, type of family, dietary pattern, educational status, occupation, family monthly income, and area of residence.

Out of which Dietary pattern χ^2 = 2.66, Educational Status χ^2 = 4.87, Occupation χ^2 = 3.02, Type of Family χ^2 = 2.89 were not found to be significant associated with pre – test score at 0.05 level and rest of the socio – demographic variables such as Age in Year χ^2 = 20.18, Family Monthly Income χ^2 = 16.08, Area of Residence χ^2 = 13.55 were found to be significantly associated with pre – test pain score at 0.05 level. Hence research hypothesis H_2 was accepted.

IV. Discussion

Objective I
To assess the level of labour pain during first stage of labour.
The level of labour pain of parturients who are in labour was assessed the pre – test pain level of parturient. The result shows that the frequency distribution of level of about pain among 30 parturients of experimental group 60% (18) had severe level of labour pain, and 40% (12) had worst level of labour pain According to universal visual analogue pain scale. In control group 17 participants (56.67%) had severe level of labour pain and 13 participants (43.33%) had severe level of labour pain.

A similar study was conducted by **Mrs. Subbulakshmi,** in the year **2018** at, Chennai. According to the first objective of the study to assess the pre-test and post-test level of labour pain during first stage of labour among primigravida mothers in experimental group and control group. in which pre-test level of pain perception almost all the primigravida mothers 30(100%) had severe labour pain in both the experimental and control group. The study findings depict that the pre-test level of pain perceptions was similar in both the experimental and control groups.

Section III: Objective II
To evaluate the effectiveness of warm compress on lumbar and sacral region in reducing labour pain during first stage of labour.
The mean score of post- test pain score 5.3 was less than mean pre – test score 9.56 suggesting that the nursing intervention was effective in decreasing the labour pain of the parturients who are in labour. The data further represent that the 't' value 22.47 is significantly higher than the table value 3.79 at 0.001 level significance. This indicates that there was the difference in pre – test, post – test pain score of participants and the nursing intervention (warm compress application) is effective in decreasing the pain score of parturients who are in labour, hence the H_1 hypothesis was accepted and proved.

A similar study was conducted by According to the **Mrs. Subbulakshmi** (**2018**) second objective of the study to find out the effectiveness of moist heat application on sacrum during first stage of labour among primigravida mothers in experimental group. The result shown that the level of pain reduction score based on the effectiveness of the moist heat application during first stage of labour among 62 primigravida mothers in the experimental group 30% and in the control group 3.7%. In considering over all pain reduction score in pre - test, the primigravida mothers had 10.12 score where as in post - test the mothers had 21.00 score, so the difference between pre - test and post test score is large and it is statistically significant. Conclusion of the study shows that moist heat application was found to be effective in reducing labour pain.

Section IV: Objective III
To find out the association between pretest level of labour pain during first stage of labour with their selected socio demographic variables.
There was a significant association between pain score of parturients and demographic variables such as type of family χ^2 = 2.98 were not found to be significant associated with pre – test pain score at 0.001 level and rest of the socio – demographic variables such as Age in Years χ^2 = 17.04, Dietary Pattern χ^2 = 20.55, Educational Status χ^2 = 26.08, Occupation χ^2 = 19.98, Family Monthly Income χ^2 = 18.23 and Area of Residence χ^2 =16.01 were found to be significantly associated with ore – test score at 0.001 level. Hence research hypothesis H_2 was accepted.

➢ **H_2** – There is a significant association between the pre test scores with their selected socio demographic variables.

The study had significant association between the effectiveness of moist heat application on sacrum during first stage of labour among primigravida mothers with their selected demographic variables such as Elders, rural

more educated and Non-consanguineous mother and 39 weeks of gestational age mothers had more pain reduction score than the others. None of the other variables are significant.

V. Conclusion

The study was conducted to "Assess the effectiveness of warm compress on lumbar and sacral region during first stage of labour in reducing labour pain among parturients in selected hospitals at Udaipur, Rajasthan". In the present study 60 parturients were selected through simple random sampling technique (lottery method)**.** Researcher used true experimental pre-test post-test only design to assess the level of labour pain among parturients. Data was collected by universal pain assessment scale tool and was analysed through suitable statistical method. The participants become familiar and found themselves comfort and reduction of labour pain. This ensured that reduction of labour pain as evidenced by the result shown by universal pain assessment scale. Hence warm compress was found to be a cost-effective procedure in reduction in labour pain in parturients who are in labour.

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