

**Full Length Research Paper**

# A Study to Evaluate the Effectiveness of Selected Intervention in Reducing Level of Pain Perception among Primi Gravida Mothers

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*This study evaluates the effectiveness of warm water bag in terms of level of pain perception among primi gravida mothers. It was conducted in Nirmala Hospital, Suryapet, Telugana, India with 700 annual births. The primi gravida mothers were recruited and were allocated by non-probability purposive sampling technique into the two arms of the study, 30 in study and 30 as control group participants. The study group received warm water bag to apply the low back part of the mother. The warm water bag was given by investigator for 20 minutes and again the same step was repeated after interval of 10 minutes. Water was constantly monitored and maintained at a temperature of 37°C. Participants in the control group received standard childbirth care. In active stage of labour (3-6 cm of cervical dilatation) the women completed the demographic and obstetrical information and pain was measured by 0- 10 Modified combined numerical categorical pain intensity scale. This study revealed that there is high significant difference in pain at  $p < 0.001$  level between study and control group and concluded that clinical implementation of warm water bag usage during labour could be an effective non pharmacological intervention in reducing pain perception.*

**Keyword:** Warm water bag, Pain perception, first stage of labour, primi gravida mothers

**Introduction**

Each women comes into labour room with own set of expectations, fear, preparation, pain threshold, personality and behavioral make up and ways of experiencing what is happening to her, which has to be managed effectively according to them. The pain involved in labour and birth can sometimes dominate a pregnant women or couples throughout childbirth, particularly as the babies due date approaches. The hospital surrounding may also provoke anxiety to the mother along with severe pain. It is also difficult with conventional patterns of staffing, to have long enough time to care for one mother at a time, adding to the sense of frustration and crisis. The hospitalization also is a very stressful experience. Though pain is normal during labour, all efforts should be made to reduce it to the minimum analysis states that based on the available data from 74 countries, 79% of births in the developing world was conducted by skilled health personnel's (Silva, 2000). According to Monj and Verghese (2006) in Uttar Pradesh 42% were delivered by normal vaginal delivery and in Tamil Nadu 88% mothers were delivered by normal vaginal delivery.

One of the non-pharmaceutical methods for labor pain reduction is warm water bag. Using heat with various means during labor is simple, cheap and available, it does not need any previous skills, and if used appropriately, it will have few side effects. There are not many randomized controlled trials on using heat or cold for pain control during labor; however, their effect on other clinical situations has been studied. It seems that heat stimulates heat receptors of the skin and deeper tissues, and it may reduce pain, as proposed in gate control theory. The other effect of heat therapy is probably shortening the duration of labor. Showed that heat induces a significant increase in uterine activity without causing any abnormal fetal heart change ( Penny Simkin, PT and April Bolding, PT, 2004).

**Materials and Methods**

This was a randomized interventional study. The study was conducted in Nirmala Hospital, Suryapet, Telangana India with 700 annual births. Primi gravida mothers were recruited and were allocated by non probability sampling technique into the two arms of the study. Out of 60 primi gravida mothers, 30 of them were allotted to study group and 30 of them to control group participants completed. The inclusion criteria for sample selection includes primi gravida mothers at gestational age 37 to 40 weeks with initial cervical dilation >3cm with single fetes with cephalic presentation and who had normal vitality. Formal approval was obtained from the institutional review board and from the labour room director of the Nirmala hospital suryapet to conduct the present study.

*The questionnaire for present research study comprises of two sections.*

**Section I:**

It consists of demographic variables of the primi gravida mothers such as age, education, area of residence, type of family and gestational age.

Section II:

Modified combined numerical categorical pain intensity scale, which is a modified pain scale selected for the assessment of the labour pain. The scale is grouped into five categories.

- 0 - No pain
- 1 – 3 - Mild pain
- 4 – 6 - Moderate pain
- 7 – 9 - Severe pain
- 10 - Excruciating pain

Intervention

A formal consent was obtained from the Nirmala Hospital and the investigator selected 60 samples using non probability purposive sampling technique.

On the selection of the study subject, a self introduction was given and the consent was obtained. The confidentiality was assured. A brief explanation about pain scale, its purpose, and importance of warm water bag was given. The primi gravida mothers who are in labour pain with first stage of labour were taken into the study. In the experimental group, the investigator assessed the level of labour pain by using modified Combined Numerical Categorical Scale. Before starting the intervention, pre assessment level of pain perception was done. The warm water bag was given by investigator for 20 minutes again the same step is repeated in a 10 minutes interval. Then the level of labour pain was assessed by using the same scale. But in the control group, pre and post test was assessed without administering the warm water bag. Water was constantly monitored and maintained at a temperature of 37°C. Participants in the control group received standard childbirth care. Each mother in study group was given warm water bag during labour and using warm water.

1. Heat enhanced blood circulation also relieves stress-induced muscle cramps. Focusing warmth on specific tissues further improves tissue metabolism and elasticity, raising the effective pain threshold. The practical requirements of warm shower bath interventions further increases patient movements, activity and encouraging the regular positional changes that help relieve pain

2. Gate control theory of pain described how nerves dispatch pain signals through the spinal cord to the brain. Pain stimuli cross the open spinal gate to receptors in the brain, where the appropriate pain response is directed. Interference with this transmission vector can yield effective pain relief. Signals generated by warm-water stimulation of epidermis thermo receptor reach the brain faster than those sent by pain receptors, effectively blocking transmission of the latter and reducing perceived pain.

Results

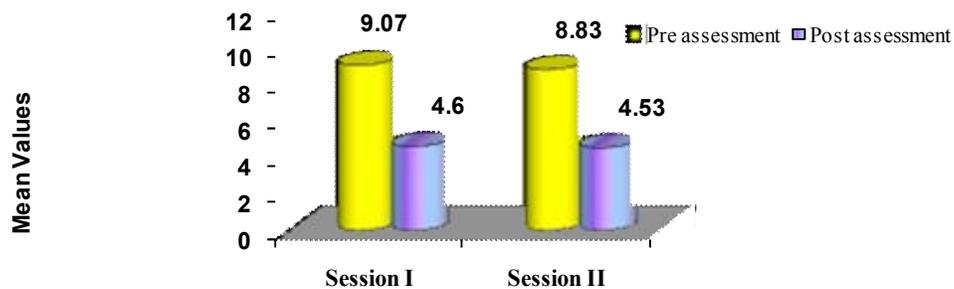
Table 1: Comparison of pre and post-assessment level of pain perception of mothers received warm water bag

N = 30

Session	Experimental Group				't' value
	Pre assessment		Post assessment		
	Mean	S.D	Mean	S.D	
Session I	9.07	0.74	4.6	1.07	21.53*** (S)
Session II	8.83	0.592	4.53	0.819	21.05***(S)

\*\*\*p<0.001 level, S - Significant

The above table shows that the 't' values in session I and session II were 21.53 and 21.05 which was significant at p<0.001 level respectively. It reveals that the primi gravida mothers' level of pain perception has reduced after warm water bag. There was a



significant reduction in the level of pain perception among primi gravida mothers after warm water bag.

Fig 1: Comparison of pre and post assessment level of pain perception of primi gravida mothers received warm water bag

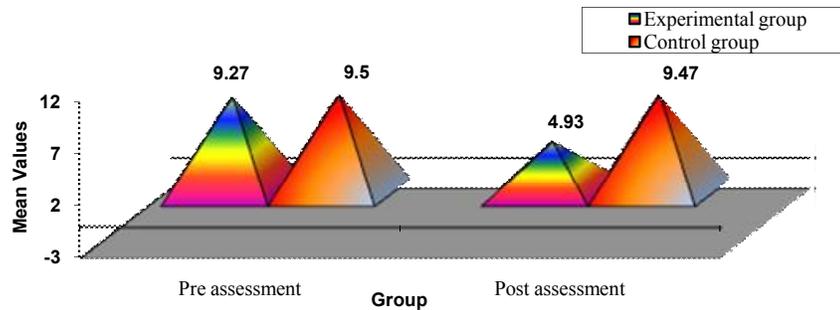
**Table 2:** Comparison of pre and post-assessment level of pain perception of the primi gravida mothers in the experimental and control group

Group	Pre assessment		Post assessment		't' value
	Mean	S.D	Mean	S.D	
Experimental	9.27	0.583	4.93	0.868	24.75*** (S)
Control	9.50	0.509	9.47	0.507	0.24

N = 60

\*\*\*p<0.001 level, S – Significant

The above table shows that the obtained 't' value in the experimental group was 24.75, which was significant at p<0.001 level and the 't' value of 0.24 in the control group was not significant at any level.



**Fig 2:** Comparison of pre and post-assessment level of pain perception of primigravida mothers in the experimental and control group

**Discussion**

Pain in labour is a universal experience for child bearing mothers, while therapeutic heat is a frequent and familiar activity and thought to be beneficial for comfort during labour its efficacy was rarely evaluated in clinical studies. The present study found a positive effect of therapeutic warm water bag on the studied women pain levels. The effect was significantly marked, when compared with the control group. Data of the present study clearly demonstrate the effectiveness of warm water bag in reducing labour pain. Geissbuhler et al. compared water birth with land birth and showed that the patients in water birth group needed less obstetrical analgesia and warm water caused pain reduction in 69% of the patients.12 Similarly, Grodzka et al. showed that labor in warm water bath caused labor pain reduction in 76% of all cases.13 Comparing the results of this study with those of others, we can conclude that heat therapy has some useful effects and the parturient feels less pain. Although the mentioned studies investigated the effect of immersion in warm water, the main point in all the surveys is warming the region or environment. So, we used these studies for comparing to our study. As to the duration of labor stages, our findings showed that the mean duration of the 1st and 3rd labor stages in the heat therapy group was shorter than that in the control group but the mean duration of the 2nd stage of the labor did not differ in both groups. Ohlsson et al. findings that showed there was no significant change between water birth and routine care groups during the first labor stage in primiparous women. However, Grodzka et al. and Cluett implied that warm water caused reduction in duration of labor stage. Malarewicz et al. revealed that warm water had a profitable influence which is shortening the labor stages. Khamis et al. studied the effect of local application of heat on the abdominal wall on the uterine activity in primi gravida women and found that heat induced a significant increase without causing any abdominal fetal heart changes. We used dry heat therapy in our study but we did not find a similar study, so we compare our study with those using wet heat therapy. The reasons for disagreement of our study results with those of other studies can be using oxytocin in the present study, racial differences, and warm water immersion in other studies as compared with dry heat therapy only in the perinea region in our study. Heat induces blood circulation in the uterine, affecting the force and severity of uterine muscle contraction.

Pain perception there was high statistical significance found in study and control group at 0.001 level and the difference mean value was 5.07 score between these groups which shows that usage of warm water bag during labour enhances reduced labour pain among the primi gravida mothers. This result was supported by a qualitative study on characteristics of a positive experience for mothers.

The effect of warm water bag usage on labour outcome shows that study group mothers had lower rate of caesarean and instrumental delivery and effective contraction and decreased duration of labour and reduced the need of analgesics and augmentation of labour than the control group and there was a high significant difference found at p<0.01 and p<0.001 level. These results are supported by a study on influence of maternal mobility on duration of active phase of labour which was done by Lee et shows that the good

performance of maternal mobility has reduces pain perception influences on labour process; it increases tolerance to pain, avoids the use of analgesics drugs during labour, and improves the evolution of dilatation and reduces the duration of the active phase.

### **Conclusion**

Warm water bag induces muscle relaxation, increases the mother's peace, induces endorphin release, and increases the internal oxytocin, causing uterine contraction and decreased bleeding after delivery. As shown by the findings of our study, heat therapy with warm bag is very effective for pain during labor, reducing pain severity in the first stage of labour. It is hoped that the results of the present research contribute to the improvement and promotion of the quality of obstetrical care.

### **References**

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