

## EFFECT OF HEAT THERAPY TO DECREASE THE INTENSITY OF LABOUR PAIN ON FIRST STAGE ACTIVE PHASE

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### ABSTRACT

Childbirth is a stressful moment that causes pain, fear, and anxiety. Childbirth pain can be reduced with heat therapy. The research aimed to know the effect of heat therapy to reduce pain intensity at the first active phase. This study used pre experimental with plan one group pretest posttest design. The population were all of maternal mothers in Muhammadiyah Surabaya Hospital on July 03 to 17 2016. The total of samples were 50 maternal mothers with accidental sampling. The data used were primary data with interview and observation. The instruments used were electrical heat therapy, timer, check-list and FLACC behavioral scale. The data were analyzed with t-Test level of significance ( $\alpha = 0,05$ ). The results that almost entirely childbirth pains of pre heat therapy were very uncomfortable 84%. After the heat therapy 70% of maternal mothers experienced moderate pain. The results of t-test showed heat therapy affect the first stage of labor pain reduce ( $p=0.000$ ). This research concluded that the heat therapy affect the first active phase pain reduce.

Key Words: Heat therapy, Labour Pain.

### INTRODUCTION

Childbirth pain as a myometrium contraction is a physiological process with different intensity toward each individual. The pain experienced during the childbirth was unique to every mother and could be influenced by several factors including age; gender; culture; the meaning of pain; attention; anxiety; fatigue; previous experience; coping styles; and family and social support (Perry & Potter, 2005).

Pain in childbirth is considered as the only physiological pain so there is an opinion that pain intensity does not need to be reduced (Prawirohardjo, 2009). Although the childbirth pain is a physiological thing, it is painful, unpleasant and frightening for mothers (Gondo, 2011). According to research by Kho: fiah 2015 entitled "Differences Effectiveness Massage Techniques (Massage Effleurage) and Heat Therapy Against First Stage of Labor Pain in Puskesmas Bergas Kabupaten Semarang" with 14 maternity women as respondents, 21.4 % maternal experiencing severe pain, 78.6 % moderate pain and 0.0 % mild pain.

Factors causing the childbirth pain were lack of oxygen to the muscles of the

uterus (child birth pain became more severe if the interval between contractions was short, so that the supply of oxygen to the muscles of the uterus has not fully recovered); stretched cervix (effacement and dilation); baby pressure on the nerves in and near the cervix and vagina; tension and stretched the supporting connective tissue of the uterus and pelvic joints during contraction and falling infant; pressure on the urinary tract, bladder, and rectum; stretched the muscles of the pelvic floor and vaginal tissue; fear and anxiety can cause the release of stress hormones in large quantities (epinephrine, nor-epinephrine, and others) that resulted in the emergence of labor pain were longer and heavier (Simkin, 2007).

The pain felt by the mother could increase body metabolism characterized by rapid breathing. Changes in maternal respiration and metabolism causing interference with the placenta, so the fetus was deprived of oxygen and continued on the occurrence of anaerobic metabolism, increased cardiac output, tachycardia, arrhythmia, tacypnea and hyperventilation. Another impact if the pain was not interfered with the increasing maternal anxiety could lead to birth complications (Yuliatun, 2008).

Considering that the pain impact was significant enough for the mothers and babies, there must be an effort to reduce the pain. Various attempts were made to reduce labor pain pharmacological and non-pharmacological. Pharmacological pain control was more effective than the non-pharmacological method, but pharmacological method was more expensive and it potentially effected and harmful for the mothers, fetus, as well as for the progress of the childbirth. Meanwhile, non-pharmacological pain control was inexpensive, simple, effective and without disadvantageous effects and could improve satisfaction during the childbirth because the mother can control the feelings and strength (Maryunani, 2010).

Pharmacological methods of pain management included: analgesia, Intra Thecal Labor Analgesia (ILA), local anesthesia and general anesthesia (Andarmoyo, 2013). Non-pharmacological methods management of childbirth pain were: childbirth companion; regulation of breath and relaxation; water treatment; massage; positioning and mobilization; injection of sterile water; Transcutaneous Electrical Nerve Stimulation (TENS); acupressure; acupuncture; aroma therapy; biofeedback; homeopathy; intervention body and mind; music; reflexology; self-hypnosis; and compress therapy.

Compress therapy could be done with warm and cold compresses. A heat therapy was one of the non-pharmacological methods considered highly effective in reducing pain as it could increase the local temperature of the skin increased circulation to the tissues for metabolism in the body. This could reduce muscle spasms and reduce pain (Yanti, 2010).

According Brown, et. al. (2001) entitled "Women's non-pharmacological Evaluation Methods Used Pain Relief Owing Labor" in North Carolina, United States with 46 respondents of maternity women, heat therapy 44 % are very effective in reducing pain, 56 %

somewhat effective and ineffective 0 % . Although heat therapy is effective in reducing labor pain the use of heat therapy still slightly at 28%. Until now, researchers have not found references research conducted in Indonesia on the use of heat therapy to handle labor pain.

## RESEARCH METHODS

This study used pre experimental design with plan one group pretest posttest design. The population of this study were all of maternal mothers in Muhammadiyah Surabaya Hospital on July 03 to 17, 2016. The total of samples were 50 maternal mothers. The sampling technique used in this study was non-probability sampling with accidental sampling technique.

Before doing observations, the researcher explained to the mothers about the purpose of the research and asked them to fill out and sign the informed consent sheet. Then, the researcher assessed whether the mothers were qualified as respondents or not. If a woman qualified as a respondent, the next step was observing the intensity of pain by using a behavior observation scale (behavioral FLACC scale) pre action.

Maternal mothers were given a heat therapy with electric hot pot on pain points of the first stage active phase of the childbirth between the umbilicus with symphysis, hips, and lower back part of the thoracic 10, 11, 12 and lumbar 1 for 10 minutes at each point alternately with mothers position was tilt during heat therapy were given.

After compressing for 30 minutes, the observation was then done to the intensity of pain using a scale observation of behavior (behavioral FLACC scale) post action. The data were analyzed by using computer software through statistical test t-test with significance level ( $\alpha = 0.05$ ).

## RESULT AND DISCUSSION

Table 1  
Pain Intensity Pre Action on Maternal Mother at the First Active Phase

Mean	Mean±SD
Pre action	7.86± 1.229

Table 1 showed that the mean of the childbirth pain before getting the heat therapy was 7.86.

Table 2  
Pain Intensity Post Action on Maternal Mother at the First Active Phase

Mean±SD	Mean±SD
Post Action	5.80± 1.340

Table 2 showed that the mean of the childbirth pain after getting the heat therapy was 5.80.

Table 3  
Effect of Heat Therapy to Reduce Pain of Maternal Mother at the First Active Phase Pain Intensity

Pain Childbirth	Mean±SD	t	95% CI	p
Pre action	7.86:1:1.229	2.060	-1.771	0.000
Post action	5.80:1:1.340	1.018	2.349	

Table 3 showed that the childbirth pain pre and post action decreased by 2.060. the result *of t-Test* value  $P = 0.000$  which showed that the heat therapy affect the first active phase pain

Pain Intensity Pre Action on Maternal Mother at the First Active Phase

The pain experienced by each person was subjective, individual and various, because the sensitivity or pain threshold was different. The level of significance toward the pain was also different. People who have a high level of significance toward the pain did not feel the pain of small stimulus. Whereas, people who had a low level of

significance toward the pain could feel the pain of small stimulus. According Judha (2012), the average pain intensity of maternal mother at the first active phase with a VAS scale of 6-7 parallel with severe pain intensity on a descriptive scale.

The pain experienced during the childbirth was unique to every mother. It could be affected by several factors including age; gender; culture; the meaning of pain; attention; anxiety; fatigue; previous experience; coping styles; and family and social support (Perry & Potter, 2005).

Based on the results of the study mothers aged less than 20 years felt uncomfortable pain on childbirth process. The score was 10 (very high) according to FLACC behavioral scale. This is in accordance with the opinion of Andarmoyo (2013). He stated that the young age tend to be associated with unstable psychological conditions. It caused much worry so that maternity felt more severe toward the pain. Age was also used as one of the factors in determining the level of significance of the pain. The level of significance would increase hand in hand with the age increasing and the understanding of the pain.

In this study, the average pain intensity mothers with parity <1 (primigravida) was higher than the intensity of a mother with parity >1 (multigravida). This was reinforced by the opinions of Andarmoyo (2013) the previous delivery would help to overcome the pain. Previous pain experience did not necessarily mean that the individual would receive easier pain in the future. If the individual often experience a series of pain episodes for a long time without recovering the fear, it would arise and vice versa. As a result, clients would be better prepared to undertake the necessary measures for the relief of pain (Perry & Potter, 2005).

### Pain Intensity *PostAction* on Maternal Mother at the First Active Phase

The working principle of a heat therapy using pot heat by conduction was where the heat transfer occurred from the jar heat into the stomach would enhance blood circulation and reduce muscle tension. It could decrease the pain of maternal women because they experienced uterine contractions and smooth muscle contraction.

The Gate control theory says that stimulating the skin to enable the transmission of sensory nerve fibers A-beta were bigger and faster. This process reduced pain transmission through the fiber C and delta. A small diameter synapses gate closed pain impulse transmission. The heat therapy would increase blood flow and relieve pain by removing the inflammatory products, such as bradykinin, histamine, prostaglandins that caused local pain. The heat would stimulate the nerve fibers that closed the gate so that the transmission of pain impulses to the spinal cord and to the brain was blocked (Simkin, 2005).

There were a few maternal mothers at the first active phase who did not feel the change of the pain intensity. This was due to individual tolerance to pain was different and the intensity of pain would grow higher and more frequently in accordance with the opening of the cervix mothers till the pain could not be transferred to the heat therapy method. According to the research, mothers whose cervixes opened 8 cm could not decrease the intensity of delivery pain after a heat therapy. 25% of mothers whose cervixes opened 7 cm did not feel the decrease pain intensity, and the 75% mothers could feel it but not significant after the heat therapy. Mothers whose cervixes opened 6 cm, 41.7% felt the pain intensity decrease not significant after getting a heat therapy.

According to Andarmoyo (2013), pain intensity was proportional to the strength of contraction and pressure occurred. Pain increased when full dilatation of the

cervix due to the infant pressure on pelvic structures followed by straining and tearing of the birth canal. In accordance with the limitations of non-pharmacological pain relief was that not all women who use this method could obtain the desired level of pain (Maryunani, 2010).

### Effect of Heat Therapy to Reduce Maternal Mother at the First Active Phase Pain Intensity

Statistical test results in table 3 showed that there were effects of heat therapy to reduce pain intensity of the first active phase of childbirth. Ratnasari (2015) stated that there was an effect of a heat therapy to the first stage of labor pain intensity. It was supported by the result of Behmanesh, et. al. (2009) which stated that a heat therapy could reduce the intensity of labor pain.

In this study, most maternal mothers of the first active phase of childbirth felt pain and only a small percentage experiencing moderate pain before the heat therapy. This occurred because the uterine muscle contractions caused pain in the waist, abdominal area and spread to the thigh. The intensity of the pain associated with the strength of contraction and the pressure posed. The pain increased with the isometric contractions of the uterus against constraints by the cervix /uterus and perineum. Strong uterine contractions were the causes of strong pain (Andarmoyo, 2013).

Based on the research findings, after getting a heat therapy, maternal mother at the first active phase experienced significant pain reduction. It was supported by Manurung, et. al. (2011), there was an effect of heat therapy to the reduction and prevention of a meaningful increase in labor pain scale. Siregar (2012) showed that there were significant effects of heat therapy giving to reduce pain intensity in first stage active phase maternity. Another study conducted by Brown, et. al. (2001) entitled "Women's

Evaluation Non-Pharmacological Pain Relief Methods Used During Labor" in North Carolina, United States with 46 respondents of maternity women, heat therapy 44 % were very effective in reducing pain, 56 % somewhat effective and ineffective 0%.

Heat therapy increased the local temperature, circulation and tissue metabolism. Heat therapy reduced muscle spasms and increased the pain threshold. The heat would stimulate the nerve fibers that close the gate so that the transmission of pain impulses to the spinal cord and brain was blocked (Simkin, 2005).

#### CONCLUSION

There were affects of giving heat therapy to reduce first stage active phase of the childbirth pain intensity. This study did not observe the frequency, duration, and intensity of prior treatment, so that in subsequent studies need to be done prior to observations provide measures to reduce labour pain.

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