THE 2nd INTERNATIONAL CONFERENCE OF HEALTH SCIENCE 2015
Optimizing The Life Quality of Children Under SDGs
POLTEKKNES KEMENKES YOGYAKARTA

PROCEEDING BOOK

October, 11th, 2015
Inna Garuda Hotel Yogyakarta

Email: ichs@poltekkesjogja.ac.id
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THE 2\textsuperscript{nd} INTERNATIONAL CONFERENCE ON HEALTH SCIENCE 2015

"Optimizing The Quality of Life Children Under SDGs" (Sustainable Development Goals)

October 11\textsuperscript{st}, 2015
INNA GARUDA HOTEL YOGYAKARTA, INDONESIA

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"Optimizing The Quality of Life Children Under SDGs" (Sustainable Development Goals)

INNA GARUDA HOTEL YOGYAKARTA, INDONESIA
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EFFECT OF WARM COMPRESSION TO DECREASE THE LEVEL OF LABOR PAIN WOMEN IN PRIMARY HEALTH CARE MEGANGSAN YOGYAKARTA IN 2012

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ABSTRACT

Pain delivery potentially harmful to the mother and fetus as a result of prolonged labor. Obstructed labor accounted for 10.2% of maternal deaths in Indonesia. Therefore, reduction of labor pain is not just for pleasure, but become a fundamental need to break the cycle of pain and all the consequences there of. Non-pharmacological pain management with warm compresses have advantages over other methods are easy, cheap and safe for both mother and fetus, there is no depressive effect on the respiratory system, the cardiovascular and the progress of labor. Knowing the influence of a warm compress to decrease the level of labor pain on mother Maternity in PHC Mergangsan Yogyakarta in 2012. This study used a study design Randomized Control Trial with pre-post test with control design. Population is all maternal active phase of the first stage in PHC Mergangsan 2012. The sample is all maternal active phase of the first stage which met the inclusion criteria: ≥ 4 cm of the dilatation cervix, as well as exclusion criteria: mothers with induction, labor pain relief therapy as hypnobirthing, anesthesia samples were taken by simple random sampling. Data were analyzed using paired t-test and independent sample t-test. The average pain scale active phase of the first stage of labor after being given a warm compress is 7.6 for the treatment group and 8.86 for the control group, p-value of 0.000 (0.000 <0.05). There is the influence of a warm compress to the normal labor pain when I was active in PHC Mergangsan.

Keywords: warm compresses, labor pain.

INTRODUCTION

Mortality and maternal and perinatal morbidity remains high is a major problem in developing countries. Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) is an indicator of the degree of health of a country. MMR and IMR in Indonesia is still high, even the highest in ASEAN, namely 228 per 100,000 live births, while IMR 23 per 1,000 live births. High MMR and IMR this indicates a low level of welfare of the population, so it is still occupying the top spot in health care agenda in Indonesia.¹

The main causes of maternal deaths are still caused by due to pregnancy and childbirth. Labor can be run fairly and smoothly when supported with calmness and relaxation, so that the muscles of the uterus to contract properly, rithmy and strong. Childbirth women are quite relaxed, causing contractions that occur will be safely and effectively push the fetus toward the birth canal with the dilatation of the cervix. Women who do not relax because of the tense face of labor, the muscles in the waist will be more rigid so that the process of the birth of the fetus becomes longer.² This prolonged labor accounted for almost 10.2% of IMR, because aspexia impact on newborns.

Pain in childbirth is painful uterine contractions can result in increased activity of the sympathetic nervous system. Severe pain in childbirth can cause physiological changes in the body such as blood pressure rises, increased heart rate, respiratory rate increased,

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and if not addressed it will increase the sense of worry, tension, fear and stress. Increased consumption of glucose the body at birth mothers who experience fatigue and stress cause the secretion of catecholamines inhibit uterine contractions, it causes prolonged labor which eventually led to anxiety in women, increased pain and prolonged stress. Increased consumption of glucose the body at birth mothers who experience fatigue and stress cause the secretion of catecholamines inhibit uterine contractions, it causes prolonged labor which eventually led to anxiety in women, increased pain and prolonged stress.3 Labor pain potentially harmful to the mother and the fetus, therefore the reduction of labor pain is not just for pleasure, but become a fundamental need to break the cycle of pain and all the consequences there of.4

Many methods can be done to reduce pain during childbirth, can generally be grouped in two categories: pharmacological and non pharmacological. Non-pharmacological methods that can be used to reduce labor pain among others hypnobirthing and massage. Both these techniques have several drawbacks, among others: hypnobirthing need a long time since pregnancy until delivery, the need for trained personnel / experts. Massage should learn the proper massage techniques before delivery of experts (doctors, midwives, nurses).5 Non-pharmacological pain management one of which is the provision of a warm compress. Due account of existing techniques based on ease of course, cheap and above all safe for both mother and fetus, there is no depressive effect on the respiratory system, the cardiovascular and the progress of the delivery process.6 Actions warm compresses aims to dilate blood vessels thereby increasing the blood circulation to the painful, and reduce muscle tension which would increase muscle relaxation or reduce the pain caused by spasm or stiffness so that the pain of menstruation can be reduced.7 Warm compresses can use objects such as hot water in a bottle, heated towels, pillows electricity, heat pads, a warm bath or shower.

The effect of warm compresses when used for 20 to 30 minutes then it will lead to decreased blood flow due to vasoconstriction reflex as the body attempts to control heat loss. Heat on the network continuously will cause damage to the epithelial cells so the skin becomes reddish, the pain, and became blistered. One idea of the workings of a warm compress is to cause the release of endorphins, thus blocking the transmission of pain stimuli. Based on this, researchers interested in conducting research on the effect of the level of pain in normal vaginal delivery of the active phase of the first stage performed a warm compress to the mother giving birth at health centers Mergangsan Yogyakarta in 2012.

RESEARCH METHODS
This type of research Randomized Controlled Trials (RCTs) with pre-post test with control group design. The study population was all women giving birth in the active phase of the first stage Mergangsan Health Centers in 2012, with the inclusion criteria: ≥ 4 cm of the dilatation seviks, as well as exclusion criteria: mothers with induction, labor pain relief therapy as hypnobirthing, anesthesia. Samples were taken randomly in the population who have fulfilled the inclusion and exclusion criteria. The number of samples using a minimum number of samples for experimental study of 15 people treated group and 15 in the control group samples that meet the criteria.
Subject | R
---|---
Experimental group | O1 | X1 | O2
The control group | O3 | O4

Description:
O1: The level of labor pain before a warm compress on the experimental group.
X1: Giving a warm compress on the experimental group.
O2: The level of labor pain after a warm compress on the experimental group.
O3: The level of labor pain before treatment in the control group is the group given relaxation techniques according to the standard normal delivery.
O4: The level of labor pain after treatment in the control group.

Instruments to measure the intensity of labor pain using the Visual Analogue Scale (VAS) with a range of 0 - 10. The bag of hot water (jar) to give a warm compress. Thermometer to measure the temperature of the water. Water with a temperature of 40.50 C to 430 C. The cloth wrapping jar. Data analysis using Stata version 8.0 program. Analysis using Paired t test, independent samples T-test with significance level $p < 0.05$.

RESULT

Table 1
Frequency Distribution Characteristics of Subjects Research by Age, Gravida, dilatation of the cervix and homogeneity test results.

| Characteristics | Treatment ($n=15$) | Control ($n=15$) | $\chi^2$ | $P$
|---|---|---|---|---
| Age | N | % | N | % |
| - 20-30 | 12 | 52,17 | 11 | 47,83 | 0,18 | 0,66 |
| - <20, >30 | 3 | 42,86 | 4 | 57,14 |
| Gravida | | | | |
| - Primi | 7 | 53,85 | 6 | 46,15 | 0,13 | 0,71 |
| - Multi | 8 | 47,06 | 9 | 52,94 |
| Dilatation cerviks | | | | |
| - 4-6 | 12 | 57,14 | 9 | 42,86 | 1,42 | 0,23 |
| - >6 | 3 | 33,33 | 6 | 66,67 |

Description:
$n =$ number of samples
$\chi^2 =$ Chi Square
$p =$ $p$ value

Based on Table 1 it can be seen that most of the research subjects aged 20-30 who are healthy reproductive age. The age of the treatment group and the control group no differences were signifikan marked with a $p$-value of $0.66 > 0.05$. This means that age in both groups were homogeneous.
Gravida in both groups largely multigravida. Gravida in the treatment group and the control group no differences were signifikan marked with a p-value $0.71 > 0.05$. This means gravida in both homogeneous group. The dilatation of the cervix majority of $4-6$ cm. The dilatation of the cervix in the treatment group and the control group no differences were signifikan marked with a p-value of $0.23 > 0.05$. This means that the dilatasi cervix in both homogeneous group.

### Table 2
Results of the analysis of the homogeneity of labor pain

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Average (Mean)</th>
<th>SD</th>
<th>Statistics</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>7</td>
<td>1.25</td>
<td>0.05</td>
<td>0.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>7</td>
<td>1.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Description:
SD = Standard Deviation  
F = F hitung  
$p$ = $p$ value  
Signifikan * $p<0.05$

Based on the table 2 that the level of pain before treatment between the treatment group and the control group no significant difference. It is characterized by $p$-value $0.97 > 0.05$, which means that the level of labor pain before treatment between the two groups of homogeneous.

To see if the numerical data that is the attitude and behavior of normal distribution or not, performed statistical tests using the Shapiro-Wilk and Sktest. Analysis of normal distribution using the Shapiro-Wilk to see the results of the Shapiro-Wilk and probability value, while Sktest to see the value of skewness and kurtosis values. Results showed that the test Shapiro-Wilk normality using the Shapiro-Wilk values obtained pre-test probability value is $0.95$ to $0.23$. Probability value $> 0.05$, it can be concluded that the data were normally distributed. Test for normality using Sktest shows the results of pre-test levels of pain that is $0.48$. This shows that normal distribution of numerical data in which the value of kurtosis $< 3.8$.

### Table 3
Paired t test analysis of the level of pain in the treatment group and the control

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre Test</th>
<th>Post-Test</th>
<th>mean difference</th>
<th>$T$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean(SD)</td>
<td>Mean(SD)</td>
<td>(95%CI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>7 (1.25)</td>
<td>7.6(1.4)</td>
<td>0.6</td>
<td>4.58</td>
<td>0.00</td>
</tr>
<tr>
<td>Control</td>
<td>7(1.06)</td>
<td>8.86(1.06)</td>
<td>1.86</td>
<td>8.67</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Description:
SD = Standard Deviation  
CI = Confidence Interval  
$t$ = $t$ score  
$p$ = $p$ value  
Signifikan * $p<0.05$

Based on Table 3 that the level of pain in the treatment group there are differences in average 0.6 point. Signifikan there are differences in pain levels before and after treatment were marked with $0.00$ p-value $<0.005$. In the control group there was an increase on average of pain to 1.86. Increased pain is also significant difference with p-value $0.00 <0.05$. 

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Table 4
Analysis of Independent samples t-test levels of labor pain in the treatment group and the control group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Selisih rerata (Mean)</th>
<th>SD</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Pain</td>
<td>Treatment</td>
<td>0,6</td>
<td>0,5</td>
<td>-5,02</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>1,86</td>
<td>0,83</td>
<td></td>
</tr>
</tbody>
</table>

Description:
SD = Standard Deviation  \( t = \) score  \( p = \) p value  Signifikan * \( p < 0.05 \)

Based on the table 4 is known that there are significant differences in the level of labor pain in women with compressed warm and not where the p-value 0.00 <0.05. To see the possibility there are other variables that also affect the level of labor pain, such dilatation of the cervix, gravid and age then tested with independent sample t-test. The results are listed in table 5 below.

Table 5
Analysis of the Independent samples t-test Improvement of labor pain by age, gravid and dilatation of the cervix

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>mean difference</th>
<th>SD</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Pain</td>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20-30</td>
<td>1,1</td>
<td>1,02</td>
<td>-0,6</td>
</tr>
<tr>
<td></td>
<td>&gt;30</td>
<td>1,4</td>
<td>0,53</td>
<td></td>
</tr>
<tr>
<td>Level of Pain</td>
<td>Gravida</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Primi</td>
<td>1,1</td>
<td>0,68</td>
<td>-0,4</td>
</tr>
<tr>
<td></td>
<td>Multi</td>
<td>1,29</td>
<td>1,1</td>
<td></td>
</tr>
<tr>
<td>Level of Pain</td>
<td>Dilatation cervix</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-6 cm</td>
<td>1,1</td>
<td>0,92</td>
<td>-0,38</td>
</tr>
<tr>
<td></td>
<td>&gt;6 cm</td>
<td>1,3</td>
<td>1,0</td>
<td></td>
</tr>
</tbody>
</table>

Description:
SD = Standard Deviation  \( t = \) score  \( p = \) p value  Signifikan * \( p < 0.05 \)

Based on table 5 is known that age, gravid, and the dilatation of the cervix no significant effect on pain labor. This is evident from the age p-value 0.53> 0.05, p-value gravid 0.65> 0.05 and p value-dilatation of the cervix 0.70> 0.05.

DISCUSSION

Pain in childbirth is painful uterine contractions which may lead to increased activity of the sympathetic nervous system. Severe pain in childbirth can cause physiological changes in the body such as; Blood pressure rises, increased heart rate, respiratory rate increased, and if not addressed it will increase the sense of worry, tension, fear and stress. Increased consumption of glucose the body at birth mothers who experience fatigue and stress cause the secretion of catecholamines inhibit uterine contractions, it causes prolonged labor which eventually led to anxiety in women, increased pain and prolonged stress. High labor pain can cause anxiety in the mother, especially in primigravida. Pain that can not be adapted by the mothers who give birth may increase maternal anxiety, anxiety can cause long labor.
The results showed that the characteristics of the respondents in this study are mostly in the age of reproductive health. At the age of healthy reproductive function of the pelvic floor muscles strong individual and has not experienced stiffness. At the age of 35 years, the pelvic muscles more stiff, so that the delivery process is usually more painful and long. Number of pregnancies (gravida) mostly multigravida (> 1) so that the mother already has experienced labor pains. Cervical opening most of the active phase of acceleration. In the active phase of labor pain will be felt more powerful. The progress of labor are characterized by the size of the opening to make the mother will feel the pain more than the previous. This is the possibility that one of the causes either the control group or the treatment of pain increases.

Based on t-test for the treatment group, before and after intervention provision of warm compresses, there is an average difference of 0.6 with significantly (p) 0.000 to the conclusion that there are differences in labor pain before and after the administration of warm compresses. In the control group there is an average difference of 1.8 with signifikansi (p) 0.00 which means that there is a significant difference. Average labor pain was higher in the treatment group compared to the control group.

This research is in line with research which states that there are significant differences in the treatment group before and after the warm compress. The decline in labor pain caused by the administration of warm compresses during the first stage of labor aims to dilate blood vessels thereby increasing the blood circulation to the painful, and reduce muscle tension which would increase muscle relaxation or reduce the pain caused by spasm or stiffness so that the pain of labor can reduced. This warm compress can use objects such as a hot water bottle, heated towels, pillows electricity, heat pads, a warm bath or shower.

Local responses to heat occur through the stimulation of nerve endings, which are in the skin and is sensitive to temperature. This stimulation sends impulses from the periphery to the hypothalamus which will cause awareness of the local temperature and trigger an adaptive response to maintain normal body temperature. The body can tolerate temperatures within a wide range. Normal skin surface temperature is 34 °C, but the temperature receptors usually can quickly adapt to the normal temperature of 45 oC to 15 oC, and pain can arise if the temperature is outside this range. During the procedure of granting a warm compress the temperature range between 40.5 °C to 43 °C and is normally given for 20 to 30 minutes. The effect of warm compresses when used for 20 to 30 minutes then it will lead to decreased blood flow due to vasoconstriction reflex as the body attempts to control heat loss. Heat on the network continuously will cause damage to the epithelial cells so the skin becomes reddish, the pain, and the skin becomes blistered. One idea of the workings of a warm compress is to cause the release of endorphins, thus blocking the transmission of pain stimuli.

Giving a warm compress on the area of the body will give a signal to the hypothalamus via the spinal cord. When the receptors are sensitive to heat dihipotalamus stimulated, issued effector system signals start sweating and peripheral vasodilation. Changes in the size of blood vessels are regulated by the vasomotor center in the medulla oblongata of the brain stem, under the influence of the anterior hypothalamic parts causing vasodilatation. It causes vasodilation occurrence of discharge / loss of energy / heat through increased skin (sweating), is expected to decrease body temperature to reach normal circumstances back.

Based on the results of the study it appears that a warm compress can be signifikan reduce labor pain in the implementation of this method should be performed by a husband and family.
CONCLUSION
This study proves that the warm compresses to a disruption of normal labor pain in the active phase of the first stage. Average of first stage of labor pain active phase prior to giving a warm compress intervention in the treatment group and the control is 7. While the average labor pain active phase of the first stage after being given a warm compress is 7.6 for the treatment group and 8.86 for groups control

RECOMMENDATION
1. For Health Polytechnic of Ministry of Health in Yogyakarta, as a reference library that can be used to add information to the students, especially the information about the "Effect of a warm compress to the level of pain in the first stage of labor active phase".
2. For Mergangsan midwife at the health center, as consideration for the management of labor pain by using methods without the use of drugs.
3. Researchers further, in order to continue the research by comparing the pain-reducing methods other and with the larger number of samples.

REFERENCES