

ORIGINAL ARTICLE

COMPARISON OF ENDORPHINE MASSAGE AND EFFLEURAGE MASSAGE ON PRIMIGRAVIDA 1ST STAGE LATENT PHASE PAIN IN INDONESIAYanuar Eka Pujiastutik^{1*}, Paramita Ratna Gayatri¹ and Ely Isnaeni¹¹Departemen of Nursing, Faculty of Health Sciences, Institut Ilmu Kesehatan Bhakti Wiyata Kediri, East Java, Indonesia

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ABSTRACT

Latent phase pain was happen caused by several conditions such as cervix dilatation, uterus muscle hypoxia, lower segment uterus stretching, fetus head lower movement, and other condition which increases pain nerve system stimulus. One of the Non-pharmacological therapies to reduce the level of primigravida latent phase pain was Endorphin massage and Effleurage massage. This massage blocks catecholamines and adrenaline hormone thus trigger the birth process by stimulating oxytocin production. This study aims to determine the comparison of the effectiveness of the Endorphin Massage, Effleurage Massage, and control group on primigravida 1st stage latent phase pain. The research is pra experiment research with one group pre-test post-test design and takes place at RS Aura Syifa Kediri for five-month. The population for this research was all mothers of participants was 90 maternal mother at RS Aura Syifa Kediri. The subject for this research was 90 maternal mothers at RS Aura Syifa Kediri which appropriate with inclusion criteria and use total technique sampling. The inclusion criteria for this research were a maternal mother with 1st stage latent phase pain who agree for following this research. Mann Whitney test results for the endorphins group and the effleurage group were 0.002. Likewise for the significance value between the endorphin group and the control group of 0,000 where this value is smaller than 0.05 so the conclusions there is a significant difference between the pain reduction in the endorphin group and the control group. The final conclusion is that the endorphin group is the treatment that has the greatest effectiveness in reducing pain compared to the other groups and there was a significant difference between the effectiveness of pain reduction in the 3 groups

Keywords: Endorphin Massage, Effleurage Massage, 1st Stage Latent Phase Pain

INTRODUCTION

Childbirth/ labor pain identically faced by a pregnant woman in the birth delivery phase. Physiologically, this pain exists when the uterus muscles contract in an effort to open the cervix in order to prompt the infant head towards the pelvic. Stage 1 birth delivery process consists of 2 phases that are a latent phase and an active phase. Latent phases occur as long as 7 hours, while the active phase could be 6 hours¹.

Labor pain start exists in the latent phase stage 1 of childbirth. The latent phase usually 0-4 cm of unveiling cervix, and occur as long as 7 hours². This pain possibly reduces muscle uterine muscle contraction, uteroplacental circulation, uterine oxygen flow, and also possibly make uterine ischemia, which develops the pain impulse³.

In Indonesia, 2015, there are about 5.354.594 pregnant women 45 % of them are childbirth spontaneous, while in 2016 are 25% from 5.111.204 pregnant women⁴. While in east java in 2015, there are 638.168 pregnant women while in 2016 there are 609.161 pregnant women⁵. From the preliminary data in the Aura Syifa hospital, there are 75 maternal mothers in November 2017, 85 people in December, and 87 people in January 2018.

The cause of the pain birth because of the process of dilatation uterine, uterine muscle hypoxia, corpus uterine ischemia, stretching segments under the uterus, the decline in the head of a fetus, and other change which cause pain nervous system stimulation which makes the labor pain happen⁶.

According to Cuningham (2004) in Andarmoyo 2013⁷, labor pain as a contraction of the myometrium is a physiological process at different intensities in each individual. Pain is an unpleasant stimulation that causes fear and worry. In childbirth, the pain that arises causes anxiety and usually causes fear and stress which can lead to a reduction in maternal-fetal blood flow. Labor pain is caused by a stretch of the lower segment of the uterus and cervix and the presence of ischemia uterus Farer 2001 Andarmoyo 2013⁷. Pain intensity is proportional to the strength of contraction and pressure that occurs. Pain increases when the cervix in full dilatation due to infant pressure on the pelvic structure is followed by stretching and tearing of the birth cana⁷.

Primigravida who do not have experience childbirth previously had more intense pain sensation than multiparous women^{1,8}. When maternal mothers faced with the situation it will trigger the release of pain in childbirth, namely

hormone catecholamine and adrenaline. The release of these two hormones will hinder the release of oxytocin which hormone naturally release when childbirth⁸. If hormone Oxytocin were inhibited, uterine muscle contraction would waken. This can cause an abnormal contraction and possibly as birth canal obstacles and uterine muscle weakness⁹.

Methods for reducing pain in childbirth can be pharmacologically and no pharmacologically. A method of pharmacology between the anesthetic drugs and analgesic as the effect of anesthesia during childbirth possibly has an effect on blood pressure depression, limitation of motion, shaking, and individual back pain¹⁰. While the nonpharmacological methods can be used namely endorphin massage and effleurage massage method non-pharmacology can be an alternative one of them is therapist or touch. There are several massage methods that can be used namely endorphin massage and effleurage massage.

An endorphin light touch massage is a technique that can give a sense of quiet and comfortable so that when someone is given an endorphin massage, can increase the formation of endorphin and make muscle relaxant¹¹. This is also in accordance with the research of Kartikasari (2016)¹² that is endorphin massage was able to reduce the moderate and hard level of maternal mother backpain. Maternal back pain relief to a mild and moderate level after 30 minutes, 30 times per week endorphin massage. We can conclude that endorphin massage does make an effect on 3rd-trimester maternal mother backpain intensity.

Endorphine is a light touch and massage technique. To provide a sense of calm and comfort that can increase the release of the hormone oxytocin and endorphins. Endorphin massage can provide a sense of calm and comfort so that when given endorphin massage, it can increase the formation of endorphins and make muscle relaxation³. Just below the surface of the skin, which is attached to the hair follicle, there is a smooth muscle called the pili erector. This muscle reacts to stimulation by the contractor. When this happens, the muscle pulls up to the surface hair, becomes erect, and causes goosebumps. when goosebumps, helps to create endorphins in the brain, so as to provide a relaxing and comfortable effect and reduce anxiety and pain and can stimulate the release of the hormone oxytocin which can trigger the birth process¹¹. Research Dewi 2017 on the effectiveness of endorphins massage and ice packs to believe the first stage of employment pain between pregnant women in Candimulyo health center, Indonesia produced the number of mothers experienced massive pain level decreased from 20% to 0% by given endorphin massage. In addition, in the group who received endorphin massage, 9 mothers declared having

heavy labor pain, however, after the treatment, only 3 mothers declared the heavy labor²².

Effleurage massage is one of the massage therapy methods which using repeated mild circular palmar pressure massage¹³. NilaQurniasih (2016)¹⁴ stated that effleurage therapist can be lowered pain of the scale mild pain, and heavy. Effleurage Massage can be related to the gate control theory, where this theory says that touch and pain when stimulated together, touch sensation will travel to the brain and close the gate in the brain, so there is a limitation of perception of pain.

This light touch also has a distraction effect and increases endorphin hormones so that mothers who experience labor pain feel comfortable because of muscle relaxation (Monsdragon, 2004 in Pane, 2014)¹⁵. This result is supported by the researcher, Anggraeni (2015)⁶, this research found that effleurage massage can reduce pain in childbirth in the active phase of the 1st stage of childbirth. The survey obtained the result that effleurage massage made for 20 minutes during the childbirth pain level. Both endorphin massage and effleurage massage have an effect which both able to block hormone catecholamine and adrenaline to produce hormone Oxytocin to trigger the coming of the process they give birth. So that an endorphin and effleurage therapist can reduce pain childbirth when 1st stage latent phase.

Based on the background above researchers interested in taking on the titles, "comparison of endorphins massage and effleurage massage on primigravida 1st stage latent phase pain in Aura Syifa kediri hospital".

METHODS

This study has been passed for ethical clearance test conducted by Institut Ilmu Kesehatan Bhakti Wiyata with certificate number: 496/PP2M-KE/VII/2019. Informed consent was used during data collection, which was considered aspects of data collection procedures, voluntary, and confidentiality.

The research is pra experiment research with one group pre-test post-test design and takes place at RS Aura Syifa Kediri for five-month.

The population for this research was all mothers of participants was 90 maternal mother at RS Aura Syifa Kediri. The subject for this research was 90 maternal mothers at RS Aura Syifa Kediri which appropriate with inclusion criteria and use total technique sampling. Inclusion criteria for this research are in birth delivery maternal mothers with 1st stage latent phase pain who agree to follow this research. Maternal mothers with maternal complications were excluded from this research.

Sampling for this research sampling techniques by non-probability sampling type total sampling. The Independent variable for this research was the effectiveness of Endorphin Massage and Effleurage Massage, while the dependent variable for this research is the pain of latent phase I. This research was divided into 3 groups. The first group (P1) Endorphin Massage, the second group (P2) Effleurage Massage, and the third group (P3) is the control group.

This instrument that used in this research for measuring pain at 1st latent phase was using scale pain Wong Beker 0 = very happy no pain, 1 = pain just a little 2 = a little more pain, 3 = much more pain 4 = much more very pain, 5 = pain was amazing.

This stage includes observation or observation and interviews about the effectiveness of endorphin effleurage massage and massage to pain when 1st phase latent primigravida Aura Syifa to the detective. At this stage, the information provides sheets and consent of approval among respondents according to inclusion criteria are divided into 3 treatment given endorphin massage, the treatment given effleurage massage, control groups that were not given intervention and use the measuring instrument that the pieces raw observation Wong Beker. After respondents agree we do (pre-test) pain scale measurements using scale Wong Beker. Then through pain scale measurements then afterward done the endorphin effleurage massage and massage and each group by granting the bracelet red to endorphin massage, give the bracelet effleurage of a blue color to massage, and a black bracelet for the control group. After an endorphin therapist and effleurage therapist has been sent to each group then afterward done the

measurement of a scale pain again (post-test) scale and with the use of pain, Wong Beker conducted maternity hospital room an Aura Syifa kediri.

Intervention endorphin massage with 20 pressure a massage back forming letters “V” duration 30 minutes every hour the delivery when 1st phase latent. While with a pattern movement as butterflies coiled in the abdomen the bottom on symphysis pubis repeats movements during ±20 minutes every hour the delivery when 1st phase latent. Researchers used statistical tests in computer software.

Researchers used the statistic test, Mann Whitney, to determine which group has the greatest pain reduction. The aim of the researcher is to use this test to find out whether there are differences between the treatment and control groups.

RESULTS

Before conducting a Mann Whitney test, Wilcoxon test was carried out conducted to compare the recovery before and after the given given to each group.

Descriptive Results

Below are general data covering age, education and employment.

Data on the age of respondents was categorized into 2 levels according to the Ministry of Health, 2009, namely late adolescents (17-25 years), early adulthood (26-35 years), and late adulthood (>35 years). Frequency distribution of respondent age can be seen in detail the table:

Table 1: Frequency distribution of characteristics of respondents n=90 (Primary Data Research, 2019)

Characteristics	N	%	Total
Age	N	%	
17 - 25	44	48.9	90
26 - 35	38	42.2	
>35	8	8.9	
Education			90
Junior high school	42	46.7	
Senior high school	37	41.1	
College (Ref.)	11	12.2	
Work			90
No work	50	55.6	
Entrepreneur	29	32.2	
Employee	11	12.2	

Table 2: The frequency distribution of the latent phase pain intensity (Primary Data Research, 2019)

Characteristics	Before Intervention				After Intervention			
	Scale	P1	P2	P3	Scale	P1	P2	P3
1st stage latent phase pain								
Do not feel pain	0	0	0	0	0	0	0	0
Just a little pain	1	0	0	0	1	6	3	0
Little more pain	2	0	0	0	2	18	9	0
Much more pain	3	6	9	7	3	6	14	7
Highly pain	4	18	16	17	4	0	4	14
Pain is very unusual	5	6	5	6	5	0	0	9
Total		30	30	30		30	30	30

The next statistical analysis is to do a statistical test to determine the treatment using endorprin, effleurage, and the control group affect the decrease in the pain level of the respondent. The statistical analysis used was the Wilcoxon test which functions to compare the pain before and after the treatment given to each group.

Based on the Wilcoxon test results presented in the table above, it is known that the significance value for the group treated endorphin is 0,000. This value is smaller than the error rate of the study used which is 5% (0.05) so that the conclusion that can be drawn is that there is an effect of the endorphin treatment on the pain reduction of respondents.

The significance value in the effleurage group was also 0,000. This value also gives a conclusion that the treatment using effleurage significantly influences the decrease in the pain level of the respondent. The significance value of the control group was 0.083. This value is greater than 0.05 so the conclusion that can be drawn is that there is no influence of the control group on the reduction in pain levels or the pain level in the control group is the same both before and after treatment.

To determine the group that has the greatest pain reduction using the Mann Whitney test with the following results:

Table 3: Mann Whitney test between groups

Groups	Endorprin	Effleurage	Control
Endorphin Massage	-	0,002	0,000
Effleurage Massage	0,002	-	0,000
Control Group	0,000	0,000	-

The results of the Mann-Whitney test between the endorphin group and the effleurage group were 0.002. This value is smaller than 0.05 so the conclusion based on this sig value is that there is a significant decrease in pain between the endorphin group and the effleurage group. Likewise for the significance value between the endorphin group and the control group of 0,000 where this value is smaller than 0.05 so the conclusions that can be drawn are that there is a significant difference between the pain reduction in the endorphin group and the control group.

DISCUSSION

After collecting data through observations, Endorphin Massage, Effleurage Massage, and the control group have been processed, then interpreted and analyzed according to the

analyzed variables, then the following words will discuss those variables.

Effect of Endorphin Massage on decreasing pain during the Primigravida latent phase

Based on the results of the study obtained data frequency distribution of pain before treatment. In the group before being given endorphin treatment, there were 18 respondents who experienced pain with a scale of 4, 6 respondents had pain with a scale of 5, and 6 others had pain with a scale of 3. In the effleurage group, there were 16 people who had pain with a scale of 4, 5 people with a pain scale of 5, and 9 people with a pain scale of 3. In the control group, 17 people had pain on a scale of 4, 6 people on a scale of 5, and 7 people had pain on a scale of 3.

According to research conducted by Azizah (2011), pain is a complex thing, so many factors

that can affect labor pain among them are age. Most respondents were late adolescents age 17-25 years as many as 44 respondents (48.9%). In accordance with the Notoatmodjo (2013)²⁰ theory, age has a relationship to experience with a health or disease problem and decision making. According to research conducted at the Aura Syifa hospital, age is very influential on the pain felt by respondents because, in the study the younger the age of the mother, the more pain will be felt because she does not have experience dealing with pain before.

The research data shows that the majority of respondents' education in junior high school with a total of 42 respondents (46.7%). Education can affect the capture power and mindset of a person, because the higher the education of the person, the more the catching power and the pattern of thinking will develop²⁰. According to the researchers, the catching power and mindset are when the researcher explains the informed consent and procedures before carrying out the Endorphin Massage intervention so that someone who is highly educated will give a more rational response than those with basic or low education.

Based on the results of the study showed that respondents who did no work were 50 respondents (55.6%). According to research conducted by Puspita (2013), that work can affect maternal fatigue and readiness. Mothers who work outside the home will take up a lot of their time so that it will affect the readiness that mothers experience before labor. In this study mothers who work outside the home experience more severe pain than mothers who work at home because mothers who work outside the home do not have more preparation than mothers who work at home.

The results of the interview from the respondents indicated that after the endorphin massage was done, it was more relaxed so that it could reduce the feeling of discomfort during the labor process

Effect of Effleurage Massage on the reduction of pain during the Primigravida latent phase

After being given treatment endorphin, effleurage, and control (without treatment). In the group treated with endorphin, there were 18 respondents who had pain on a scale of 2, 6 people on a pain scale of 3, and 6 others had pain on a scale of 1. In the effleurage treatment group, there were 14 respondents who had pain on a scale of 3, 4 people had pain on a scale of 4, and 9 respondents had pain on a scale of 2. In the control group, respondents who had pain on a scale of 5 experienced an increase of 9 people. One factor that can affect labor pain is age⁷. In this study maternal age was grouped into 2 according to Depkes, 2009, namely Late Adolescents 17-25 years and Adults Early 26-35 years, and the most respondents were late adolescents aged 17-25 years as many as 44 respondents (48.9%). This is in accordance with

the theory revealed by Judha (2013)⁶ that physical development and organs at an age less than reproductive age will not be ready to carry out reproductive tasks and psychic maturity causes a more severe reaction to pain that arises. In this study, someone who is too young will find it difficult to control pain because he has no experience in controlling pain before.

The research data shows that the majority of junior high school with a total of 42 respondents. According to Budiman and Riyanto's theory (2013), Education is a process of changing the attitude and behavior of a person or group and is an effort to mature humans through teaching and training efforts. In this study education between respondents with high and low education was very different because respondents with SMA were more mature in responding to perceived pain than those with low education.

The research data shows that respondents who no work were 50 respondents (55.6%). According to research conducted by Puspita (2013)¹⁸ that mothers who experience fatigue and lack of preparation before childbirth will have an impact on anxiety before delivery because mothers who work outside the home have a high level of anxiety compared to mothers who only work at home. In this study, mothers who work outside the home when they are going to undergo labor experience anxiety and lack of preparation before childbirth, causing anxiety that can cause labor pain to get heavier.

Similar to the endorphin massage, interview results obtained from respondents that after effleurage massage it makes you more relaxed during the labor process.

Comparison of the between groups on the pain during the Primigravida latent phase

The results of the Mann-Whitney test between the endorphin group and the effleurage group were 0.002. This value is smaller than 0.05 so the conclusion based on this sig value is that there is a significant decrease in pain between the endorphin group and the effleurage group. Likewise for the significance value between the endorphin group and the control group of 0,000 where this value is smaller than 0.05 so the conclusions that can be drawn are that there is a significant difference between the pain reduction in the endorphin group and the control group.

There are many techniques for doing massage, including effleurage massage and endorphin massage. Both of these techniques have differences in the way or place of massage so that they have different effects and sensations. The endorphin massage itself is a touch and light massage technique on the back by forming the letter "V" which gives a sense of comfort to the mother¹¹. While the Effleurage Massage is a form of massage using the palm of the hand which gives

gentle pressure to the surface of the body with a circular direction repeatedly¹³.

By giving a massage, it can produce pain relief compounds, namely endocrine which can block pain messages so that they are not transmitted to the brain so that pain does not occur¹³. In general, the results of the study above that endorphin massage and effleurage massage are effective in reducing pain to reduce pain. But in the study, the average respondent experienced a lot of reduction in endorphin massage treatment compared to effleurage massage because in this study most respondents experienced pain in the back and the duration of the endorphin massage was 30 minutes every hour at the stage of labor. Endorphin massage is carried out by continuously compressing the back area so that the pain sensation experienced by the respondent during labor tends to decrease when compared to effleurage massage. While the Effleurage Massage is done by doing a gentle massage at the bottom of the umbilicus above the symphysis pubis slowly in the area. So that the Endorphin Massage can reduce pain faster than the Effleurage Massage. Thus, there is a comparison between endorphin massage and effleurage massage to reduce primigravida latent phase pain.

Limitations of Research among others. There are respondents who are prohibited by their husbands when they will do Endorphin Massage and Effleurage Massage interventions so that the sample decreases and the technique and duration when the Endorphin Massage intervention is longer than the Effleurage Massage.

CONCLUSION

The final conclusion that can be drawn is that the endorphin group is the treatment that has the greatest effectiveness in reducing pain compared to the other groups and there was a significant difference between the effectiveness of pain reduction in the 3 groups.

Conflict of interest

The authors declare no potential conflict of interest.

Acknowledgments

The author would like to thank the Institut Ilmu Kesehatan Bhakti Wiyata for providing financial assistance in publishing this research

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