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The effect of endorphin massage on reducing the intensity of childbirth pain Kala I in maternity mothers

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Abstract---Labor pain is normal and natural, but if it is not treated, it will impact the welfare of the mother and fetus. Pain during labor can be reduced by non-pharmacological means. One of them is endorphin massage. Endorphin massage is a light massage technique or touch that can normalize the heart rate and relax the mother's body. This study aims to determine the effect of endorphin massage on reducing labor pain. The research design used was a Quasi Experiment with a One Group Pretest-Posttest Only Design. The sampling technique used was accidental sampling with a total sample of 26 people at Denpasar's Independent Practice of Midwife working area. The measuring instrument used was the Numeric Rating Scale which is analyzed using the Dependent T-Test. This study showed that the average value of labor pain before an endorphin massage was 8.38, and labor pain after an endorphin massage was 4.19, with a *p value*=0.000. This result indicated a *p-value* <0.05, therefore, endorphin massage was proven effective in reducing the intensity of labor pain in maternity mothers. Maternity mothers who have been given endorphin massage feel lighter labor pain and relaxation.

Keywords---Endorphin Massage, labor pain, Maternity.

1 Introduction

Childbirth is a scary and painful time for mothers who are about to give birth. Families and mothers who are about to give birth will experience tension and emotional drain. Therefore, it is necessary to have support during the labor process to minimize the condition. Because the presence of emotional support during childbirth will shorten the duration of delivery, minimize the occurrence of interventions, and can realize a good delivery (Johariyah & Ningrum, 2012).

A safe delivery does not necessarily make the delivery not accompanied by aches or pains. Therefore, most women are not ready to have children because they imagine giving birth which will be accompanied by pain (Maryunani, 2010). Labor pain is normal and can be estimated to appear, that is, around pregnant term so that the mother has time to face the delivery and prepare herself. The pain that arises has a duration that is so high and acute. It ends when labor is completed and its appearance intermittently (Manurung, 2011). Labor pain is a natural and normal thing. However, if it is not treated, it will affect the condition of the mother and the fetus. The fear, anxiety, and tension suffered by maternity mothers can cause the production of prostaglandin hormones that can cause stress that not only affects the mother but also the fetus so that it can cause the delivery process to be more comfortable (Sulistyawati & Nugraheny, 2013).

Labor pain can be reduced by non-pharmacological means, one of which is endorphin massage. Endorphin massage is a mild or tactile massage technique that triggers the production of endorphin compounds that can produce feelings of comfort and relieve pain. So far endorphins are known to be compounds that have a myriad of benefits (Kuswandi, 2011). The main purpose is to carry out relaxation. Massage in the back for 3-10 minutes can normalize heart rate, lower blood pressure, and maximize breathing and trigger the production of endorphine compounds that can minimize pain. The endorphin massage technique does not require expensive costs and has no side effects on mothers and babies, (Harianto, 2010). In the process of childbirth that does not require anesthetics, emotional pressure or pain can be minimized with this relaxation technique. (Aprilia, 2017). The results of Fitriana and Putri's research in 2017 on the impact of giving endorphin massage on the intensity of pain during the first active phase in childbirth found that there was an influence of endorphin massage (endorphin massage) on the intensity of pain in primipara mothers in the midwife of independent practice fika saumi pringsewu. In line with tanjung and Antoni's research in 2019 in Padang City, it shows that endorphine massage has proven effective in minimizing the intensity of Kala I childbirth pain in maternity mothers with a p-value of 0.001. The use of endorphine massage therapy is expected to be carried out by midwives so that pain during childbirth can be minimized.

The results of a preliminary study that has been carried out in the TPMB working area of the South Denpasar Health Center found that midwives have never done endorphin massage in maternity mothers and midwives do not understand about endorphin massage. Based on this, researchers are interested in conducting research on the effectiveness of endorphin massage on reducing the intensity of childbirth pain when I in maternity mothers in the Midwife Independent Practice of the Puskesmas II Working Area of South Denpasar.

2 Materials and Methods

The research design used in this study was a Quasy experiment with a one group pretest-posttest only design. The intensity of labor pain in maternity mothers before being given or after being given endorphin massage therapy will be measured.

In this study, the subject of the study was a normal maternity mother who came to PMB in the work area of Puskesmas II South Denpasar. Then the maternity mother is examined by the midwife if she has entered at the time of 1 delivery, the researcher will measure the intensity of pain in childbirth experienced by the mother during childbirth. Furthermore, researchers gave endorphin massage during time 1 as much as 3 times. After the endorphin massage was given, researchers re-measured the intensity of labor pain felt by the maternity mother using a tool to measure the intensity of labor pain. This is in line with the purpose of this study, which is to determine the effectiveness of endorphin massage on the intensity of reducing childbirth pain at 1 in maternity mothers in the Midwife Independent Practice of the Puskesmas II Working Area of South Denpasar. As long as you continue to use health protocols according to the rules with PPE level 2.

The study population was mothers who gave birth in the Independent Practice of Midwives (TPMB) in South Denpasar, Bali Province. This research was carried out during the period from September to October 2021. The number of samples of this study was 26 normal maternity mothers in the Midwife Independent Practice of puskesmas II Working Area, South Denpasar. The inclusion criteria in this study were normal maternity mothers, mothers willing to be the subject of the study, and were registered as patients in the TPMB working area of Puskesmas II South Denpasar. Meanwhile, the exclusion criteria in this study were patients who could not read and write, maternity mothers who suffered complications, and used the Sectio Secaria (SC) method.

The method of this study is maternity mothers who have entered the first time of delivery in the observation of the intensity of labor pain. Then given an endorphin massage therapy treatment. After that, a posttest is carried out by re-measuring the intensity of labor pain. The data collection tool used is the Numeric Pain Rating Scale observation sheet. Data analysis was carried out with the SPSS 20.0 program. Parametric test using Wilcoxon test. This research has been declared ethically feasible by the Research Ethics Commission of the Institute of Technology and Health (ITEKES) BALI through an ethics certificate Number 04.0508/KEPITEKES-BALI/IX/2021.

3 Results and Discussions

This research has received a statement of Ethical Eligibility with Number 04.0508 / KEPITEKES-BALI / IX / 2021 dated September 14, 2021 from the Ethics Commission of the Faculty of Health, Bali Institute of Technology and Health (ITEKES Bali).

Table 1
Characteristic frequency distribution

Variable	Frequency (n)	Percent (%)
Age (years)		
20-25	8	30,8
26-30	7	26,9
31-35	5	19,2
≥35	6	23,1
Parity		
1	7	26,9
2	9	34,6
3	8	30,8
4	2	7,7
Work		
Housewife	10	38,5
Self employed	11	42,3
Private	5	19,2
Education		
SD	4	15,4
SMP	6	23,1
SMA	11	42,3
College	5	19,2
Total	26	100

Based on Table 1, it can be concluded that in terms of age, almost half of respondents 30.8% aged 20-25 years, almost half of respondents 34.6% have had 2 children. Nearly half of respondents worked as self-employed 42.3% and nearly half of respondents 42.3% had a high school education.

Table 2
Distribution of Pain Frequency Before and After Endorphin Massage

Pain Scale	Frequency (n)	Percent (%)
Pain Before Massage		
Severe pain	11	42.4
Very Severe pain	15	57.6
Pain After Massage		
Moderate Pain	10	38.5
Mild pain	16	61.5
Total	26	100

Based on Table 2, it can be concluded that the intensity of labor pain before being given endorphin massage mostly feels labor pain with a very severe pain scale of 57.6%. Meanwhile, the intensity of labor pain after being given endorphin massage mostly felt labor pain with a moderate pain scale of 61.5%

Effectiveness of Endorphin Massage

After the data normality test using the Shapiro-Wilk test ($N < 50$) was carried out, normally distributed data was obtained because the significance value was more than 0.05 (> 0.05). So, in this study using the Wilcoxon Test. As in Table 3. below.

Table 3
Effectiveness of Endorphin Massage on Labor Pain Intensity

Variable	Mean	Z	Asymp.Sig. (2-tailed)	Frequency (n)
Pain Before Massage	8.38	-4.517	0,000	26
Pain After Massage	4.19			

Based on Table 3. above, it is concluded that the average value of labor pain before being given endorphin massage is 8.38 and labor pain after being given endorphin massage is 4.19. with a p value = 0.000. This shows that the p value of < 0.05 so that endorphin massage has been proven to be effective in reducing the intensity of childbirth pain in maternity mothers in the Midwife Independent Practice (TPMB) working area of Puskesmas II Denpasar Selatan.

4 Conclusion

Endorphin massage first developed by Constance Palinsky is a mild touch therapy that can treat pain. During the labor process, discomfort can be minimized by increasing the feeling of comfort from the surface of the skin with this technique. In addition, this technique can help in normalizing blood pressure as well as heart rate which includes a mild massage that can result in fine hairs on the surface of the skin standing. So that it can increase the release of the hormones endorphin and oxytocin (Aprilia, 2017). The benefits of Endorphin Massage are that it stimulates sensory receptors on the skin and brain underneath, maximizes blood flow to the affected area, provides a general sense of well-being associated with human proximity stimulates the release of endorphin hormones, decreases endogenous catecholamine stimulation to efferent fibers that can trigger the blocking of excitatory pain (Aprilia, 2017).

The results of this study, the results of the Wilcoxon Test analysis showed that the average value of labor pain before being given endorphin massage was 8.38 and labor pain after being given endorphin massage became 4.19 with a p value = 0.000. This shows that the p value of < 0.05 so that, endorphin massage has been proven to be effective in reducing the intensity of childbirth pain in maternity mothers in the Midwife Independent Practice (TPMB) working area of Puskesmas II Denpasar Selatan.

In line with the research by Handayany (2020) which showed the results of the analysis using the Wilcoxon Test that the average back pain at the bottom before giving endorphin massage was 3.30 and after being given endorphin massage changed to 1.95. The signification value of pain before and pain after endorphin massage is 0.000. This shows that the p value of < 0.05 so that it can be concluded that there is an effect of giving endorphin massage on the magnitude of

low back pain in pregnant women in the III trimester in the work area of the Putri Ayu Health Center, Jambi City.

Endorphin massage can stimulate a certain point that is in the spinal medulla meridian, which is then spread through large nerve fibers to the formatio reticularis, thalamus and limbic systems of the body will secrete endorphin compounds. Endorphins that have a function in minimizing pain and stress, so as to increase the sense of comfort in the mother. Massage can inhibit the spread of pain by maximizing the circulation of neurotransmitters made by neural synapses in the central nervous system. The release of P substance that can inhibit the transmission of pain by binding to the presymphytic membrane, so that pain can be reduced will be inhibited by endorphin compounds (Rokade, 2011).

One solution in minimizing pain suffered by maternity mothers is to use one of the non-pharmacological therapies, namely endorphin massage which can stimulate impulses coming from peripheral nerve receptors to the first place compared to pain impulses that spread along the pain fibers. After that, the brain that has received impulses will intervene in general the sensation of the message and not receive the message of pain (Judha, 2012).

Azizah's research (2011) found that the pain during childbirth experienced by the control group was mostly severe pain as many as 10 people (66.7%), moderate pain as many as 4 people (26.7%), and very severe pain as many as 1 person (6.7%). Then the labor pain experienced by the treatment group mostly experienced mild pain as many as 9 people (60.0%), moderate pain as many as 4 people (26.7%) and severe pain as many as 2 people (13.3%). It was found that there was an effect of giving endorphin massage on the intensity of pain during the I normal delivery of primiparous mothers (p value = $0.000 < 0.05$). Endorphins can maximize the release of oxytocin which is a compound that can minimize pain Production of growth hormone and sex, control of persistent pain and pain, control of stress, and increase the immune system can be regulated with endorphine massage (Mongan, 2009).

Diana's research (2019), in Surabaya found that before giving endorphin massage, most of the mothers who experienced moderate back pain were 12 people (60%), most mothers experienced mild back pain were 14 people (70%). From the results of the analysis using the Wilcoxon test, it was found that the results of the value of $\rho = 0.000 < \alpha = 0.05$, which shows that there is a significant effectiveness in giving endorphin massage against reducing back pain in the third trimester pregnant women at TPMB Lulu Surabaya.

In line with Kartikasari's research (2016) in Lamongan, East Java, it was found that before being given Endorphin massage, most pregnant women in the 3rd trimester suffer from severe pain and after being given endorphin massage, the pain that was originally severe turned into moderate pain. The results of the Wilcoxon sign rank test with $\alpha = 0.05$ showed $p = 0.000$ so that $p < 0.05$ which means that there is an influence in the administration of Endorphin massage on reducing the intensity of back pain. Endorphin massage is one of the alternative solutions that are non-pharmacological in nature that can be used to relieve pain.

Midwives are advised to be able to provide health education and can guide pregnant women's spouses to do Endorphin massage so that pain in the back of the maternity mother can be minimized.

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