

# The effect of Jasmine Aromatherapy and Back Massage to Reduce the Intensity of Labor Pain in the Active Phase in Maternity Hospital Ngadilah, Malang City

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**Abstract---** Labor pain is a physiological pain that is experienced by a mother. Jasmine aromatherapy and back massage can probably reduce pain, and stress. The sedatives (linalool) in the aroma of jasmine will stimulate the hypothalamus to reduce pain. This study aims to determine the effect of jasmine aromatherapy and back massage on labor pain when used in the active phase of childbirth. The method used in this study was a pre-experimental design with a one group pre-test post-test. The sample was taken through total sampling from 10th -26th August 2019. The population consisted of birthing mothers from Maternity Hospital Ngadilah in Malang city. The number of samples taken totaled 30 respondents. Pain intensity was measured using a numeric rating scale. The data analysis was conducted using the Wilcoxon test with an Asymp. Sign ( $0.00 < 0.05$ ). The results of the analysis showed a value of  $p < 0.00$ . There were differences in the average intensity of pain when in the active phase of labor before and after being given aromatherapy using jasmine and a back massage. There is an effect because the endorphin compounds in the jasmine aromatherapy and back massage can provide comfort to the mother and eliminate pain. Hopefully this method can be applied to maternity wards by health workers.

**Keywords---** Jasmine Aromatherapy; Back Massage; Labor Pain

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## I. INTRODUCTION

Childbirth is a series of events that results in the expulsion of a baby who is to term or nearly to term followed by the removal of the placenta and fetal membranes from the mother's body [1]. Childbirth is the process of the opening and thinning of the cervix in addition to the occurrence of uterine contractions, causing the pain felt in labor. Pain is a natural part of labor. Labor pain is the subjective experience of physical sensations associated with uterine contractions, cervical dilatation and thinning, as well as fetal decline during labor [2].

The causes of pain in childbirth involve physiological and psychological factors. Physiological factors include the intensity of pain that increases from 1 to 10 opening in a manner that is often proportional to the strength of the contractions and the baby's pressure on the pelvic structure. This is followed by strain and potentially the tearing of the

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birth canal [4]. The physiological responses that are not handled well will cause other problems, namely psychological responses such as increased anxiety due to the lack of knowledge. There is no previous experience for the primigravid mothers when facing labor. Pain at the time of labor starts in the latent phase and continues into the active phase. In the latent phase, the pain feels strong and regular but it lasts for a long time. The cervix opening takes 8 hours in this phase. As the frequency and intensity of the uterine contractions increases, the pain is felt to be getting stronger and it peaks in the active phase. In this phase, the complete opening of the cervix takes place at around 4-6 hours in primiparous and 2-4 hours in multiparas [3].

Based on the 2012 IDHS, the average maternal mortality rate (MMR) reached 359 per 100,000 live births. The average death rate is much higher compared to the results of the 2009 IDHS which reached 228 per 100,000. In this case, the surge in deaths is certainly a correction of the government which would have previously reduced the MMR to 108 per 100,000 live births in 2015 according to the target of the Millennium Development Goals (MDGs) (2012 IDHS). The maternal mortality rate (MMR) in Malang in the last 5 years shows a declining trend from 2012 to 2016, but it has increased again in 2017. Compared to the 2017 MDG target which was 105 per 100,000 live births, it can be said that the target was not achieved although the numbers have continued to decline. They have approached the target number but in the last year, it has actually moved further away again. This is lower than the temporary national MMR according to the MDG target [1].

The data from Ngadilah Maternity Hospital in Malang City showed that there was an average of 30 deliveries per month. The results of a preliminary study of 4 mothers showed that all complained of pain in the perineum, abdomen and lower back. Additionally, 2 of the mothers tried to reduce the pain by taking a deep breath. The occurrence of pain makes the first stage last longer than is standard.

Pain, tension and fear can produce excessive amounts of catecholamines (stress hormones) such as epinephrin and norepinephrin. High levels of catecholamines in the blood can prolong labor by reducing the efficiency of the uterine contractions. This can harm the fetus by reducing the blood flow to the placenta. This situation can cause the management of the labor to become less controlled and this can allow trauma to happen to the infants. Many efforts have been made to reduce the pain felt during labor through both pharmacological and non-pharmacological methods [10].

The content of sedatives (*linalool*) in the aroma of jasmine will stimulate the hypothalamus to produce sedative substances in the body such as endorphins, encephalins and serotonin. This can cause a sense of joy, pleasure, and relaxation to inhibit the brain's response to excitatory pain [11].

Based on the above background, the content of sedatives, especially *linalool* in the jasmine, has the potential to cause feelings of happiness and relaxation to distract them from feeling pain. This can be inhaled from a handkerchief to increase the effectiveness of the aromatherapy [12]. In addition, at the same time, the researchers are interested in adding the back massage intervention in an effort to block the pain response so then it does not reach the brain. Both interventions can achieve a significant reduction in the labor pain level. Therefore the researchers are interested in conducting empirical research on the administration of the intervention of jasmine aromatherapy and a back massage for 2 x 10 minutes after a 15-minute pause with the study title being "Giving Aromatherapy Using Jasmine Oil and a Back Massage to Reduce the Labor Pain During the Active Phase in Ngadilah Maternity Hospital in Malang City."

## II. METHODS

The method used in this study was a *pre-experimental design*, which consisted of a *one group pre-test post-test*. The population of this study was all of the mothers at the Ngadilah Maternity Hospital. The sample selection was carried out using total sampling on 10th – 26th August 2019. The samples totaled 30 respondents. Pain intensity was measured using the *numeric rating scale*[4]. The researcher gave an informed consent sheet to each respondent. The data processing was done by *editing, coding, scoring and tabulating*. The data analysis used the Wilcoxon test [8].

## III. RESULTS

- Characteristics of the Respondents

Based on Table 1, most of the respondents were aged 25-35 totaling 16 people (53%). For the education characteristic, 14 people had a junior high school level of education (47%). For the job characteristics, most of the respondents worked as an IRT totaling 21 people (70%). For the parity characteristic, those with the primipara parity totaled 15 people (50%).

Table 1. Characteristics of the respondents based on age, education, occupation and parity

No	Characteristics	n	%
1	Age		
	<24 years	9	30
	25-35 years	16	53
	> 36 years	5	17
2	Education		
	elementary	4	13
	school junior	14	47
	high school	9	30
	PT	3	10
3	Occupation		
	House wife	21	70
	Entrepreneurs	6	20
	Government employers	3	10
4	Parity		
	primiparas	15	50
	Multipara	11	37
	Grandemultipara	4	13
Total		30	100

Source: Primary Data, 2019

Based on Table 2, out of the 30 total respondents before being giving the jasmine aromatherapy and back massage, most of the respondents experienced a pain level scale of 11 (37%) and some of the respondents experienced pain on a scale of 3 (7 respondents: 23%). The majority of respondents experienced pain on a scale of 4 (9 respondents: 30%) and the majority of respondents who experienced pain on a scale of 3 (3 respondents: 10%). After being given jasmine aromatherapy and a back massage, the respondents who experienced pain on a scale of 10 amounted to 10 respondents (33%). Most of the respondents who experienced pain on a scale of 2 (10 respondents; 33%), some respondents experienced pain on a scale of 8 (27%) and some of the respondents experienced pain levels on a scale of 4 (2 respondents: 7%).

Table 2 Cross-tabulation of the level of pain before and after being given the jasmine aromatherapy and massage intervention

No.	Before	After										n	%
		Scale 1		Scale 2		Scale 3		Scale 4		Scale 5			
		n	%	n	%	n	%	n	%	n	%		
1	Scale I	0	0	0	0	0	0	0	0	0	0	0	0
2	Scale II	3	10	3	10	5	17	0	0	0	0	11	37
3	Scale III	4	13	1	3	0	0	2	7	0	0	7	23
4	Scale IV	2	7	6	20	1	3	0	0	0	0	9	30
5	Scale V	1	3	0	0	2	7	0	0	0	0	3	10
		10	33	10	33	8	27	2	7	0	0	30	100

Wilcoxon Signed Ranks Test :  
 Post test-pre test : Negative Rank : 16,62 (mean rank), 332.50 (sum of rank)  
 Positive Rank : 6,50 (mean rank), 45.50 (sum of rank)  
 Ties the value : 3  
 Test Statistic : Z- : 3,521<sup>a</sup>  
 p=0.000

Source: Primary Data, 2019

It is known that the Negative Ranks (negative) between the results of the jasmine aromatherapy and back massage for the pre-test and post-test are (Mean Rank 16.62 and Sum of Ranks 332.50). This value indicates that there is a decrease (reduction) from the pre-test value to the post test value. A Positive Rank or the difference (positive) between the results of giving jasmine aromatherapy and back massage and not for the pre-test and post-test is (Mean Rank Here there are 6.50 positive data (N). This means that there are respondents who experienced an increase in pain between the pre-test and post-test values. The rank mean or average and the number of positive rankings or sum of Ranks is equal to 0. can be said that the same value between the pre-test and post-test.

Based on the statistical test outputs, the known p value = 0.000. Because the  $p < 0.05$ , it can be concluded that the hypothesis is accepted, meaning that there is a difference between the results of jasmine aromatherapy and back massage for the pre-test and post-test. It can be concluded that there is a significant effect resulting from the use of jasmine aromatherapy and back massage method when it comes to reducing the level of pain felt in phase I of active labor in the Maternity Hospital Ngadilah.

#### IV. DISCUSSION

The results of the study based on Table 2 show that out of the 30 respondents, the respondents who experienced pain levels on a scale of 2 totaled 11 respondents (37%). There were 7 respondents (23%) who experienced pain levels on a scale of 3, for the scale of 4 there were 9 respondents (30%) and 3 respondents (10%) were on a scale of 5. The measurement of the pain level scale was carried out with the respondents before they were given the jasmine aromatherapy and back massage.

From the above data, it can be concluded that jasmine aromatherapy and a back massage are one of the non-pharmacological methods that can be done to reduce the pain felt in labor [7]. Jasmine oil can strengthen the contractions, relieve pain and provide a relaxing effect while the massage or gentle stroking of the back can make the mother feel more

comfortable and relaxed during labor. This is due to the body releasing the endorphin hormone which can create a feeling of comfort. Endorphin is also a natural pain reliever.

Based on Table 2 on the 30 total respondents, there were 10 respondents (33%) who experienced pain on a scale of 1. Most of the 10 respondents (33%) experienced a level of pain on a scale of 2 and there were 8 respondents (27%) who experienced a level of pain on a scale of 3. For the scale of 4, there were 2 respondents (7%) who experienced a level of pain after being given the aromatherapy and back massage intervention.

In the opinion of the researchers, the administration of jasmine aromatherapy and a back massage can inhibit or reduce the occurrence of excessive pain. This is in line with the theory that, according to Gadysa, the provision of jasmine aromatherapy and a back massage carried out for 2 x 10 minutes every hour during labor will make the mothers more relaxed. This is because jasmine aromatherapy and a back massage both stimulate the endorphin compound that is a pain reliever while also creating a comfortable feeling.

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Based on the results of the *Wilcoxon* statistical test, it is known that the results of giving jasmine aromatherapy and back massage has a p value = <0.05. The result from the other tests can be accepted as a result. Thus it can be concluded that the administration of jasmine aromatherapy and back massage is effective at reducing the level of maternal pain in the active phase. From the research results, it was determined that for 7 respondents, they felt that there was no effect caused by the administration of jasmine aromatherapy and the back massage, This is perhaps due to the young mothers or mothers who have never given birth before (primipara) resulting in them not being strong enough to withstand the pain due to it being very strong. Meanwhile, 3 respondents thought that it had value.

Based on the description above, the researchers argue that this pain can be influenced by the meaning of pain as it is felt by someone, the perception of pain, and the pain reactions that are a response from someone in pain such as fear, anxiety, anxiety, crying and screaming. This can also be influenced by the conditions and location of the area [12]. This pain can be overcome by using jasmine aromatherapy and back massage. The patients who got the aromatherapy and massage felt calm, relaxed and comfortable. They will feel closer to the health worker who serves them because both can be done simultaneously. This can indirectly reduce the level of pain that is felt.

## V. CONCLUSION

It is hoped that this will be an input for further researchers to use when conducting more accurate research in preparation for the active phase of the first stage of labor. This is a method of clinical support. Hopefully this can be one way to overcome or reduce the pain of childbirth.

## CONFLICT OF INTEREST

There were respondents who did not like the smell of the jasmine aromatherapy oil as it was too sharp.

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