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RESEARCH ARTICLE

URL of this article: <http://heanoti.com/index.php/hn/article/view/hn20701>**Effectiveness of Effleurage and Counter-Pressure Massages in Reducing Labor Pain**Retty Nirmala Santiasari¹, Detty Siti Nurdiati², Wiwin Lismidiati³ Noer Saudah^{4(CA)}¹Department of Nursing, STIKes William Booth Surabaya, Indonesia²Faculty of Medicine, Universitas Gadjah Mada, Indonesia³Magister Program of Nursing, Faculty of Medicine, Universitas Gadjah Mada, Indonesia^{4(CA)}Department of Nursing, STIKes Bina Sehat PPNI Mojokerto, Indonesia; noersaudah15@gmail.com
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ABSTRACT

Labor pain was an emotional experience and involves both physiological and psychological mechanisms during labor. Effects of labor pain includes inflammation in uterus and labor dystocia. Effleurage and counter-pressure massage were complementary treatment to relieve pain. This study aimed to analyze effectiveness of effleurage and counter-pressure massages for reducing labor pain in stage 1 of active labor phase. This study used quasi experiment design with pre-post test non-equivalent control group. Research subjects were 68 mothers in stage 1 of active labor phase, which were divided evenly to two groups. Sampling collection technique used consecutive sampling. Independent variables were effleurage and counter-pressure, while dependent variables were decline of labor pain. Instrument to assess labor pain was Numeric Rating Scale (NRS). Data were analyzed using *Wilcoxon* and *Mann Whitney*. Labor pain before and after intervention in effleurage group were 9.26 ± 1.05 and 6.88 ± 1.22 , respectively ($p=0.00$). Meanwhile, the respective numbers in counter-pressure groups were 9.00 ± 0.98 and 6.59 ± 1.28 ($p=0.00$). Average labor pain decline in effleurage and counter-pressure groups were 2.38 and 2.41, respectively ($p=0.74$). There was no significant difference between effleurage and counter-pressure in reducing labor pain.

Keywords: Labor pain, Effleurage, Counter-pressure

INTRODUCTION

Maternal Mortality Rate (MMR) is one of the indicators of community health status. According to Survey Demografi Kesehatan Indonesia (SDKI), in 2012 the rate of female deaths in Indonesia related to or aggravated by pregnancy or its management was 359 per 100,000 live births. In East Java Province, the MMR in 2014 was 39 cases.⁽¹⁾

Labor pain is an emotional experience and involves both physiological and psychological mechanisms during labor.⁽²⁾ It can be caused by uterine contraction, cervical dilatation and effacement. Pain intensity during labor will affect mothers' psychological condition, labor process and fetus condition.⁽³⁾ Excessive pain could make mothers rushing the labor and causing inflammation in uterus and no cervical dilatation that could lead to labor dystocia.⁽⁴⁾ Labor pain relief management is comprised of pharmacological and non-pharmacological treatments.

Pharmacological treatments generally include providing medicines that potentially have side effects for fetus growth.⁽⁵⁾ Therefore, non-pharmacological treatments such as massage, counter-pressure, relaxation, acupuncture, deep-breathing technique, changing body position and hot/cold therapy are more preferable as they are more effective, cheaper, and have no detrimental effect on fetus.⁽⁶⁾

Effleurage massage in the abdomen stimulates peripheral efferent nerves in T10 and first lumbar to spinal cord before transmitting to brain, which leads to endorphins release. Meanwhile, counter-pressure is a massage using strong pressure by putting palms heel on lumbar area where sensory nerves of uterus and cervix stretched through thoracic 10-11-12.⁽⁷⁾ Various studies regarding effleurage and counter-pressure massages for labor pain relief.⁽⁸⁾ The aim of this study was to analyze effectiveness of effleurage and counter-pressure massages for reducing labor pain in stage 1 of active labor phase.

METHODS

This study was conducted from 28 June to 31 August 2016 using quasi experiment design with pre-post test non-equivalent control group. Research subjects were mothers in stage 1 of active labor phase who were

patients of Bidan Praktik Mandiri (BPM) Surabaya. The research subjects were 68 mothers that were divided evenly into two groups, effleurage and counter-pressure groups. Sample collection technique was conducted by consecutive sampling.

Effleurage massage was conducted for 30 minutes in abdomen from symphysis to center. This treatment was not conducted during contraction. Counter-pressure massage was conducted for 30 minutes in first lumbar to shoulder.

Data collection instrument of labor pain assessment used Numeric Rating Scale (NRS). Respondents' characteristics were analyzed descriptively with chi square test to analyze homogeneity. Wilcoxon test was used to analyze distinction of labor pain before and after intervention on each group. Meanwhile, Mann Whitney test was used to compare effleurage and counter-pressure groups. This study was presented in ethical approval at Gadjah Mada University.

RESULTS

Table 1 shows the result of statistical independent t-test and chi square test where p value of variables age, pregnancy age, parity, education, and occupation were larger than 0.05, which means that the respondents' characteristics of both groups were homogeneity.

Table 1. The distribution of mothers characteristics

No	Variable	Effleurage		Counterpressure		P Value
		n	%	n	%	
1	Age					
	a. 20-25 year	13	38.2	14	41.2	0.94
	b. 26-30 year	8	23.6	7	20.6	
	c. >30 year	13	38.2	13	38.2	
2	Gestasional Age					
	a. 37-38 week	10	29.4	9	26.5	0.96
	b. 39-40 week	19	55.9	20	58.8	
	c. 41-42 week	5	14.7	5	14.7	
3	Paritas					
	a. Primipara	14	41.2	18	52.9	0.33
	b. Multipara	20	58.8	16	47.1	
4	Education					
	a. Elementary School	0	0	2	5.9	0.41
	a. Junior School	3	8.8	5	14.7	
	b. Senior High School	23	67.6	19	55.9	
	c. Diploma/University	8	23.5	8	23.5	
5	Job					
	a. Work	19	55.9	15	44.1	0.33
	b. Employee	15	44.1	19	55.9	

Table 2. Result of Wilcoxon Test Regarding Comparison of Labor Pain Before and After Intervention in Effleurage Group

	Before Intervention		After Intervention		P value
	Mean±SD	Median (min-max)	Mean±SD	Median (min-max)	
Labor Pain	9.26±1.05	10.00 (6-10)	6.88±1.22	7.00 (4-8)	0.00*

SD= Standard Deviation *p=0.00 (sig p<0.05)

Meanwhile, table 2 depicts comparison of labor pain before and after intervention in effleurage group. The result of Wilcoxon test showed that both of labor pain had p=0.00.

Table 3. Result of Wilcoxon Test Regarding Comparison of Labor Pain Before and After Intervention in Counter-pressure Group

	Before Intervention		After Intervention		P value
	Mean±SD	Median (min-max)	Mean±SD	Median (min-max)	
Labor Pain	9.00±0.98	9.00 (7-10)	6.59±1.28	7.00 (4-9)	0.00*

SD= Standard Deviation *p=0.00 (sig p<0.05)

Comparison of labor pain before and after intervention in counter-pressure group is shown in Table 3. The result of Wilcoxon test showed that both of labor pain and cervical dilatation had p=0.00.

Table 4. Result of Mann Whitney Test Regarding Comparison of Labor Pain Before and After Intervention in Both Groups

	Effleurage		Counter-pressure		P value
	Mean±SD	Median (min-max)	Mean±SD	Median (min-max)	
Labor Pain	6.88±1.22	7.00 (4-8)	6.59±1.28	7.00 (4-9)	0.74

SD= Standard Deviation *p=0.00 (sig p<0.05)

Table 4 illustrates comparison of labor pain before and after intervention in both groups. Based on the result of Mann Whitney test, effleurage group had higher average decline of labor pain than counter-pressure group, with the numbers were 6.88 and 6.59, respectively (p=0.74).

DISCUSSION

Labor pain is an emotional experience and involves both physiological and psychological mechanisms during labor⁽³⁾. It can be caused by uterine contraction and effacement. Massage is one of the complementary treatments for relieving labor pain. Effleurage massage in the abdomen stimulates peripheral efferent nerves in T10 and first lumbar to spinal cord before transmitting to brain, which leads to endorphins release that acts as pain reliever.⁽⁹⁾

In this study, there was a significant difference of labor pain before and after intervention of effleurage massage. This is in line with Janssen *et al* study where the result showed that effleurage massage reduced labor pain. In other study, Mortazavi *et al* reported that massage in abdomen reduced labor pain with CI 5.2-6.7 vs 4.2-5.8).⁽¹⁰⁻¹¹⁾

Intervention of counter-pressure massage also resulted significant difference of labor pain. This is in line with Akbarzadeh *et al* study where they found that BL32 acupressure was more effective in reducing labor pain with p<0.05.⁽¹²⁾ Massage in BL32 spot could stimulate uterus contraction that will fasten cervical dilatation. Meanwhile, Priska, D.A explains that there was significant difference of labor pain before and after counter-pressure massage with p<0.05.⁽¹³⁾ Hajiamini *et al* state that acupressure in thoracal 10-11-12 is more effective in reducing labor pain than ice therapy.⁽¹⁴⁾ This study showed that effleurage group had higher average decline of labor pain than counter-pressure group. As explained by Gallo *et al* this study showed that effleurage group had higher average decline of labor pain than counter-pressure group.⁸ As explained by Gallo *et al*, effleurage massage in the abdomen stimulates peripheral efferent nerves in T10 and first lumbar that could stimulate endorphins release.⁽⁸⁾ This could be affected by massage position in counter-pressure, where the body was tilted to the left that could improve blood circulation to uterus, thus uterus and its content did not press the blood vessels in the pelvic region.⁽¹⁵⁾

CONCLUSION

Based on the results and discussion, it can be concluded that effleurage and counter-pressure massages reduced labor pain for mothers in stage 1 of active labor phase. There was no significant difference between effleurage and counter-pressure in reducing labor pain.

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