How do Birth Massage and Position Change Affect Labour Pain During Active Phase

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Abstract. This research aims to know the effectiveness of combination between birth massage and change position towards the decrease of labour pain in the first active phase. Quasi Experimental with Nonequivalent Control Group method using pretest-posttest Design was applied. The population of maternity mother in the first active phase that meet the criteria of inclusion by using consecutive sampling. The number of sample was 48 maternity mothers divided into two groups, treatment group (birth massage and position change) and control group (birth massage). Observation on labor pain during pre and posttest used behavioral FLACC scale. The results showed a mean score of labour pain treatment group pretest is 6.17 ± 1.129 and posttest 2.79 ± 1.414 with average pain score decrease of pretest and posttest of 3.38 ± 1.173. While the average score labour pain control group pretest is 6.17 ± 1.129 and posttest 2.79 ± 1.414 with average pain score decrease of pretest and posttest of 3.38 ± 1.173. Mann-Whitney test results obtained the value of P = 0.564 which means there is no difference in decreasing pain in the group given birth massage combined with position changes and in the group just given birth massage. The result of this study is expected to help the mother in reducing labour pain. In addition, this research results will later be the basis for research in the field of obstetrics in particular the delivery of an effective method for reducing labour pain in non pharmacological technique.

1. Introduction
Labour pain is the physiological processes as a result of the contraction of myometrium with different intensity on each individual. Although, it is physiological, labour pain is painful, unpleasant and frightening for the mother [1]. Various efforts done to lower pain in childbirth, whether pharmacological or non-pharmacological. Pharmacological pain management is more effective than non-pharmacological method, but it is more expensive, and potentially have bad effects [2]. While the methods of non-pharmacological are cheap, simple, effective, and without adverse effects. Non-pharmacological methods also increase satisfaction during labor because the mother can control her feelings and power [3]. Labour pain therapy massage is the most primitive, and it uses gentle human reflex to resist, rub or squeeze the painful parts of the body [4]. Birth massage can reduce pain, release tension and anxiety, stimulate contractions, increase muscle flexibility, circulation and blood flow, fluid drainage, helping revitalize the mind and body, and give emotional support. This technique can increase the release of oxytocin, hormone substances which facilitate childbirth [5], in addition, this massage stimulates the body releasing compound endorphin which is a natural pain reliever [6]. The position of labour, change position, and the right movement will help improve the comfort/lowering the pain, increase satisfaction to move, and improve self control mothers. In addition, the position of mother can also affect the position of the baby and labor progress. Changing the position adequately will be able to change the size and shape of the pelvic outlet so that the baby’s head can move on optimal position of in the active phase, rotate and descended on second stage of labour. [6]
2. Experimental Method

This research was carried out in Nuril Masrakhah maternity hospital in Sidoarjo, East Java. Data retrieval was performed starting November 23, 2017 until January 24, 2018 with the number of sample as much as 48 mothers giving birth in active phase. The primary data are taken directly from the respondents through interviews and observations by using pretest and posttest filled by the enumerator. Observations made on the whole birthing mothers in active phase I that meet the criteria for inclusion. Research data taken from 48 respondents who meet the criteria. Sampling scheme can be seen in figure 1.

![Figure 1. Recruitment and flow of participant](image)

The first step before doing the observation, the selected mothers had been told about the research objectives as well as asked to fill out and sign the Informed Consent sheet further observations/observations inpartu mothers active phase by giving  pretest (initial observations) first before given birth massage combined with position change. Afterwards, they were given treatment for 20 minutes, then conducted posttest (observation end) with the observation sheet containing scale of assessment of the scale of pain with Behavioral FLACC Scale.

3. Results and Discussion

3.1 Respondent Characteristics

Table 1 shows the distribution of the sample proportion and research. This table shows the subject of research is homogeneous and comparable. Research variables namely age, parity, and the pain score before the treatment give no meaningful differences (P > 0.05). These results indicate that age, parity, and pain scores before treatment of both groups are homogeneous.

Before the data were analyzed, the test is performed first to determine whether data is normal or not. The test used is the Shapiro-Wilk as the number of samples for each group < 50. Test the normality of data can be seen in table 2. The results of the test data showed normality is not normal because it brings the value of P < 0.05. Further test done by Mann-Whitney.

3.2 The Effectiveness of Combination between Birth Massage and Position Change towards Decrease of Labour Pain in Active Phase

Table 3 shows the mean pain score prior to the implementation of birth massage and position change (group treatment) is 6.17 ± 1.129, the medium/moderate pain category. While the score pain after the treatment was 2.79 ± 1.129, the light/mild pain discomfort category. There is a decrease in
pain score of pretest-posttest of 3.38 ± 1.173. In the category of moderate pain, the patients objectively hiss, snarl, may indicate the location of the pain, can describe it, and still be able to follow orders well [7]. The average pain intensity mother maternity in active phase I with a scale VAS 4-6 is the same with moderate pain intensity level in descriptive scale [4].

Table 1: Characteristics of Respondent Distribution

| Characteristics | Group       | Treatment | Control | P    |
|-----------------|-------------|-----------|---------|------|
| Age             | 28.12 ± 6.936 | 30.75 ± 6.930 | 0.196   |
| Parity          | 2.12 ± 1.296 | 2.33 ± 1.204 | 0.567   |
| Pain Score (pretest) | 6.17 ± 1.129 | 5.62 ± 1.279 | 0.127   |

Table 2: Normality Test Result

| Variable          | Group   | Statistic | df | Sig. |
|-------------------|---------|-----------|----|------|
| Decrease of Pain Score | Treatment | 0.933     | 24 | 0.112|
|                   | Control | 0.905     | 24 | 0.027|

Table 3: The effectiveness of combination between birth massage and position change towards labour pain decrease in active phase

| Group  | Labor Pain |
|--------|------------|
|        | Pretest    | Posttest  |
| Treatment | 6.17 ± 1.129 | 2.79 ± 1.414 |
| Control   | 5.62 ± 1.279 | 2.46 ± 1.615 |

While the mean score of pain before giving birth massage (the control group) was 5.62 ± 1.279, the category of medium/moderate pain, the pain score after the given birth massage showed a decrease of 3.17 ± 1.308 ± 2.46 1.615, mild pain/mild discomfort category. On this group just given birth massage without another action.

Figure 2. Labor Pain Decrease Intensity

The pain experienced during childbirth is unique on every mother, and it can be affected by several factors, namely, physical; the perception of pain and tolerance; anxiety and fear; the experience of pain; the ministry of health and the environment of maternity service; culture; preparation for childbirth; the sense of pain and the supporting system [8]. Changing position is selected according to the mothers’ preference and that gives a sense of comfort. Most of the mothers chose the sitting position astride on a chair and leaned to the left position (left side lying) as shown in the documentation of the research.

Ambulation and an upright position during labour was associated with some of the benefits include maternal satisfaction, reducing labour pain, the acceleration of phase I, increase the strength and effectiveness of uterine contractions and lower incident deselerasi Fetal Heart [9]. The results of the study supported the theory [10], which states that the change in the position of not only helps the mother overcome pain during labour, but an upright position will allow the Earth’s gravity pulls the fetal head descends, which changes the position and the movement of the pelvic bone that are active.
will help the fetus occupies the position of the most appropriate and relevant. Several theories explain
the mechanism of a massage towards a decrease in labor pain, such as a decrease in the levels of
cortisol and norepinephrine, increased levels of serotonin, stimulates the release of oxytocin which
impacted the increase of the supply of oxygen to the tissues as well as facilitating toxin excretion via
the lymphatic system [11]. While the results of the systematic review latest Cohrane, from 6 articles
involving 326 mothers suggest that massage the possibility of significant role in lowering the pain and
increases the emotional experiences during labour. Mann-Whitney test results obtained the value of P
= 0.564 which means no difference in labour decrease in the treatment group and in the control group.

\[Figure\,3.\,Treatment\,of\,birth\,massages\,and\,position\,change\]

Several factors cause the absence of differences decrease pain on both groups likely owing to the
change of position made by the mother confined to sitting position and tilts to the left, although
already offered several alternative positions as the position of the crawl, kneel or stand. After finishing
the treatment changes the position of the birth mother with a 20-minute massage back at the starting
position that is slanted towards the left. Although there is no statistically significant difference between the
treatment group and the control group, the results showed on the treatment group (massage and birth
changes position) pain intensity decreased pain levels larger (3,38 ± 1,173) than in the control group
(birth massage) 3,17 ± 1,308 by decreasing pain between the two groups amounted to 0.21. The
freedom to move around during labour is safe and healthy for not interrupting the physiological
processes of labour [12] because the mothers who do change position during labour, reported only 40% and
only 43% of mothers who are still walking around during childbirth after hospital admission [6]. The
physiological process of birth is an event which influenced hormonal so when labour begins, the
muscles of the uterus begins respond towards oxytocin. The mother responds to pain due to
contractions, but the women feel safe and maternity, β-endorphin is helping mothers respond to pain by using the coping strategy. The
move is one of the strategies for coping pain [6]

\[Conclusion\]

This research analyzed the differences of labor pain decrease at the mothers given a combination of
birth massage and of position change with mother just given birth massage. The results showed no
difference between labor pain in treatment group and control group who were just given birth
massage. Midwives at primary health care services can help mothers in their labor process to get more
secure and comfortable experience of giving birth by providing high quality care through efforts in
reducing pain during labour with non-pharmacological technique.

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References

[1] H. Gondo, “Pendekatan Non Farmakologis untuk Mengurangi Nyeri Saat Persalinan,” 2011. [Online]. Available: http://www.kalbemed.com/portals/6/25_185opinipendekatannonfarmakologis.pdf. [Accessed: 10-Nov-2017].

[2] S. Sharma, V. Menia, J. Bedi, and S. Dogra, “Labor analgesia: an unmet right of labouring women in India,” J. SAFOG (South Asian Fed. Obstet. Gynaecol.), vol. 5, no. 1, pp. 20–23, 2013.

[3] P. A. Kusumawardani, S. Cholifah, M. T. Multazam, A. B. D. Nandiyanto, A. G. Abdullah, and I. Widiati, “Effect of Ginger Drinks on Nausea Vomiting in The First Trimester of Pregnancy,” IOP Conf. Ser. Mater. Sci. Eng., vol. 288, no. 1, p. 12161, 2018.

[4] B. Batbual, Hypnosis Hypnobirthing. Jogjakarta: Gosyen Publishing, 2009.

[5] M. Mongan, Hypnobirthing The Mongan Method. Jakarta: Bhuana Ilmu Populer, 2009.

[6] M. Ondeck, “Healthy birth practice #2: walk, move around, and change positions throughout labor,” J. Perinat. Educ., vol. 23, no. 4, pp. 188–93, 2014.

[7] S. Andarmoyo, Persalinan Tanpa Nyeri Berlebihan. Jogjakarta: Ar-Ruzz Media, 2013.

[8] A. Maryunani, Nyeri dalam Persalinan. Jakarta: Trans Info Media, 2010.

[9] T. L. King and W. Pinger, “Evidence-based practice in intrapartum care: The pearls of midwifery,” J. Midwifery Women’s Heal., vol. 59, no. 6, pp. 572–585, 2014.

[10] P. Simkin and R. Ancheta, The labor progress handbook: Early interventions to prevent and treat dystocia, 3rd ed. New York: Wiley-Blackwell, 2011.

[11] R. B. Silva Gallo, L. S. Santana, C. H. Jorge Ferreira, A. C. Narcolin, O. B. PoliNeto, G. Duarte, and S. M. Quintana, “Massage reduces severity of pain during labour: a randomised trial,” J. Physiother., vol. 59, no. 2, pp. 109–115, 2013.

[12] A. M. Romano and J. A. Lothian, “Normal Birth: A Look at the Evidence,” J. Obstet. Gynecol. Neonatal Nurs., vol. 37, no. 1, pp. 94–105, 2008.