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Effect of Relaxation and Fitness Massage on Potential Recovery in Mothers After Birth

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Abstract. The postpartum period is when the pelvic organs return to their normal condition, and the anatomical and physiological changes of pregnancy and birth are restored. The recovery depends on the mother's fitness, general medical conditions before, during, and post-pregnancy, and the type of childbirth. So that postpartum mothers do not experience long-term weakness because of changes during pregnancy and childbirth, relaxation and fitness massage are the best solutions to postpartum recovery. To determine the benefits of relaxation and fitness massage on postpartum recovery in mothers. This type of research is quasi-experimental with a pretest-posttest design with a control group. The sample was accidentally on 34 mothers after giving birth who were massaged 6 times as the intervention group and 24 as controls. Data analysis using frequency distribution, Wilcoxon test, and Mann-Whitney test. The recovery of postpartum mothers before the massage at visit 1 compared to the 6th visit was significantly different, showing $p<0.01$, while the control group was $p>0.01$. The difference test between the intervention and control groups at the 1st visit was $p>0.01$, while at the 6th visit after massage, $p<0.01$, although stretch marks and abdominal pain, $p<0.05$, meaning that there was a difference in the effect of relaxation massage and fitness on recovery time. postpartum in mothers after giving birth, between the intervention and control groups.

Keywords: Massage, Relaxation, Fitness, Postpartum Mothers

INTRODUCTION

In modern culture, maternal health is often overlooked because most attention is focused on the baby's development and growth. In contrast, in most traditional cultures, the mother's health in the postnatal period is considered very important because it is the mother who feeds the baby through breast milk physically and supports the baby emotionally so that it can grow and develop well (Dennis et al., 2007). The postpartum period is the 6 weeks period after the placenta is born. This is the time when the pelvic organs return to their normal condition and most of the anatomical and physiological changes of pregnancy and birth are restored. Many changes occur within 10-14 days after giving birth. These first few weeks are potentially dangerous, including the risk of infection due to open placental attachment and blood loss during delivery (Chauhan & Tadi, 2022).

The recovery period after childbirth depends on the mother's fitness, general medical conditions before, during and post pregnancy, and the type of birth she experienced. Some women may experience uterine involution within 4 weeks and for some systems in the body it may take 10-12 weeks or more for the structure to heal. Changes in the musculoskeletal system take longer. If the body is not cared for adequately the mother can experience long-term weakness in areas of the body that must undergo changes during pregnancy and childbirth, especially the abdomen, lower back and pelvic floor (Lopez-Gonzalez & Kopparapu, 2022).

Massage after giving birth is generally done during the postpartum period (the first 6 weeks after giving birth), whereas if it is done early after giving birth it will have many benefits for the recovery of the body's organs. Massage is beneficial for improving circulation and eliminating residual fluid retention, increasing tissue metabolism and oxygen supply, thereby renewing energy levels.

Emotionally, massage helps mothers to relax and adjust to their new role in life. Reducing stress levels also plays an important role in stimulating breast milk production (Field, 2016).

METHODS

The type of research used is quantitative with a Quasi Experimental research design with pretest posttest with group control. The research population was postpartum mothers aged 1 day to 6 weeks. The sampling technique in this study was random sampling, taking 34 mothers after giving birth up to 3 days of age as the treatment group and 24 postpartum mothers as the control group. In the treatment group, postpartum mothers, starting on day 3, were massaged twice in the first week, then continued to be massaged once every week for up to 6 massages. In the control group, visits were made according to the intervention group, only there was no massage. Data collection was carried out through interviews and observation of postpartum recovery, including uterine fundus height, stretch marks, lochea, perineal wounds, abdominal pain, pelvic pain, thigh pain, calf pain and breast milk (ASI) output. Data analysis uses a frequency distribution to calculate the frequency of each subvariable. To differentiate postpartum recovery between before massage and after 6 massages using the Wilcoxon difference test, both in the intervention and control groups. Differences between intervention and control groups were tested using Mann Whitney at an alpha level of 0.01.

RESULTS AND DISCUSSION

3.1. Description status

Frequency Distribution of Physical and Physiological Changes in the Postpartum Period in the Intervention Group of 34 postpartum mothers Before Massage (Pretest) and After 6 Massages (Post Test) as follows:

a. The height of the uterine fundus between before and after massage: above the navel as much as 1 person, as high as the navel as many as 3 people, 3 fingers below the navel 11 people, mid navel - symphysis 12 people to 1 person, 3 fingers above the navel from 6 people to 5 people and not palpable 1 person to 28 people.
b. Stretch marks before and after massage are very clear 3 people to 1 person, clear 5 to 2 people, vague from 19 to 20 people and no stretchmarks from 7 to 11 people.
c. The color of the lochia released from the birth canal before and after massage was red 19 people, reddish brown 14 people and yellowish brown 1 person. After massage 6 times 6 people were yellowish brown, 8 people were yellowish and 20 people were clear.
d. Perineal wounds Before and after massage from wet conditions 17 people, 14 people dry reduced to 8 and the perineum healed from 3 people increased to 26 people.
e. Abdominal pain felt before and after massage often 2 people, sometimes 19 to 1 person and no pain in 13 to 33 people.
f. Back pain Before and after massage felt often 5 to 1 person, sometimes 19 to 1 person and no pain from 10 to 29 people.
g. Thigh pain before and after massage often 4 people, sometimes 14 to 3 people and no pain 16 to 31 people.
h. Calf pain before and after massage often as many as 3 people, sometimes 15 to 3 people and no pain from 16 to 31 people.
i. Breast milk (ASI) release in the group before and after massage, ASI seeped as many as 19 to people, melted 7 to 3 people and gushed 8 to 28 people.

3.2. Test the Difference

Table 3.2.1. Test Results of Differences in Postpartum Mothers before and after massage in the Intervention Group and Control Group.

VARIABLE	INTERVENTION GROUP		CONTROL GROUP	
	Z	P	Z	P
Uterine Fundus Height	4,852	0,000	-1,833	0,067
Stretch Mark	-3,051	0,002	-0,333	0,739
Lochia Color	-5,149	0,000	-4,155	0,000
Perineal Wound	-4,774	0,000	-4,355	0,000
Abdominal Pain	-4,300	0,000	-2,138	0,033
Loin Pain	-3,819	0,000	-0,775	0,439
Thigh Pain	-3.704	0,000	-1,213	0,225
Calf Pain	-3,819	0,000	-0,237	0,813
Breast Milk Release	-4,332	0,000	-1,667	0,096

It is known that the Wilcoxon Sign Rank Test for the intervention group before the 1st massage and after the 6th massage all variables showed $p<0.01$, while the control group did not have a massage at the 1st visit and after the 6th visit most showed $p>0.01$ except on the color of the lochea and perineal wounds. The results showed that in the intervention group there was an effect of relaxation massage and fitness on postpartum recovery in mothers after giving birth with $p<0.01$. The differences in postpartum recovery between the intervention and control groups are presented in the Table 3.2.2. Results of Differences in the Effect of Relaxation Massage and Fitness on Postpartum Recovery in Mothers After Giving Birth in the Intervention Group and Control Group

INTERVENTION-CONTROL DIFFERENCES	PRA MASSAGE		POST-MASSAGE	
	Z	P	Z	P
Uterine Fundus Height	-1,290	0,197	-3,635	0,000
Stretch Mark	-0,889	0,374	-2,314	0,021
Lochia Color	-0,319	0,750	-3,046	0,002
Perineal Wound	-1,740	0,082	-7,219	0,000
Abdominal Pain	0,450	0,652	-2,179	0,029
Loin Pain	0,580	0,562	-4,905	0,000
Thigh Pain	-0,518	0,605	-2,981	0,003
Calf Pain	-0,052	0,958	-3,791	0,000
Breast Milk Release	0,311	0,756	-4,062	0,003

It is known the difference between the intervention group and the control group, that before the massage was carried out (visit 1), the data was collected from the respondents and then analyzed to see whether there was a difference in the effect of relaxation and fitness massage on the recovery of the postpartum period in mothers after giving birth between the intervention and control groups, showing the results p>0, 01, meaning that there is no difference in the effect of relaxation and fitness massage on postpartum recovery in mothers after giving birth in both the intervention and control groups before massage.

The next test was different between the intervention and control groups at the 3rd and 6th visits, the data of the respondents were taken and analyzed to see whether there was a difference in the effect of relaxation massage and fitness on postpartum recovery in mothers after giving birth. Variables in

postpartum recovery consist of; changes in uterine fundal height (TFU), loceal color, perineal wound healing, low back pain, thigh pain, calf pain and breast milk production (ASI) at visit 1 between the intervention and control groups all variables showed $p>0.01$. At the sixth visit after massage between the intervention and control groups, it showed $p<0.01$, but for abdominal stretch marks and postpartum abdominal pain with $p<0.05$, meaning there was a difference in the effect of relaxation massage and fitness on the recovery of the postpartum period in mothers after giving birth, both in intervention and control groups.

The postpartum period is characterized by anatomical and physiological changes associated with involution and lactation. The results of the different tests in table 4.4 show that postpartum mothers before and after massage in the intervention group, all variables were at $p<0.01$ compared to the control group, $p>0.01$, meaning that there was a difference in the effect of relaxation massage and fitness on postpartum recovery in mothers after giving birth before and after massage.

In table 4.4, it shows that at the first visit between the intervention group and the control group all variables with results were $p>0.01$, meaning that whether massaged or not massaged there was no difference, in other words there was no effect of relaxation and fitness massage on postpartum recovery in mothers after give birth to. At the sixth visit between the group that received massage (intervention) and those that did not receive massage (control), the results were $p<0.01$ except for stretch marks and abdominal pain, $p<0.05$, there was a difference in postpartum recovery between the intervention groups. massage was performed compared to controls who did not receive massage.

There is an influence of relaxation and fitness massage on the recovery of the postpartum period in mothers after giving birth because good massage techniques using effleurage, patrisage, friction affect the entire body system (Center et al., 2022). Effleurage is a massage movement that is done by gliding over the tissue of the massage area. When the hands press on the tissue and move together it will push the blood in its onward flow. This accelerates the removal of oxygen-poor blood and waste products from tissues. Effleurage performed after the mother gives birth will speed up the removal of lactic acid and relieve pain and stiffness (Putri et al., 2023).

Effleurage will help muscles recover and return to normal function. As a result of increased drainage, venous blood flows through the accelerated capillaries, increasing arterial blood flow, bringing oxygen and nutrients to the tissues more quickly. These factors promote a fitter tissue condition. Increased blood flow will increase the metabolism of tissue cells which will also improve the body's health condition. Increased blood flow and rubbing your hands on the skin will warm the area. This will help relax and relieve pain (Hinds et al., 2004). The flow of lymph in the lymphatic channels is accelerated as hand manipulation continues while the massage progresses. The flow is directed to the larger lymph nodes. Lymph removes large protein particles and tissue fluid from the tissue spaces. Accelerating drainage prevents fluid from accumulating in the tissue, so that edema is reduced.

Increased blood flow and dilation of capillaries in the skin will produce erythema, which increases skin color and temperature. Increased blood flow also nourishes the skin, improving its condition. Stratum basale cells are stimulated in growth and mitosis (cell division) increases. The more cells it produces will move upward to the surface, improving the condition of the skin. Movement and friction of the hands over the skin removes dry, peeling cells in the stratum corneum so that desquamation is accelerated and the skin looks fresh and bright (Oliver et al., 2023). The sebaceous glands are stimulated and produce more oil (sebum), which keeps the skin soft and supple. The warmth produced by massage stimulates the sweat glands, increasing the elimination of waste products. Effleurage performed in a slow rhythm has a calming effect on the skin's sensory nerve endings, which will increase relaxation. However, if the pressure is very light or barely touching, the nerve endings will be irritated or tickled, or if the pressure is very deep, the pain sensors will be stimulated. Both of these effects will increase tension and should be avoided (Hoover et al., 2022).

Patrisage is a massage movement by squeezing the tissue, like someone washing clothes or like when kneading dough. The alternating pressure and relaxation of the hand when moving over the tissue is a pumping action on the capillaries and veins underneath (Nuraini, 2016). This speeds up blood flow through the vessels so that metabolic waste is removed and fresh blood containing nutrients and oxygen flows more quickly. This condition will repair the network. The flow of lymph through the lymphatic vessels is accelerated in the same way. Thus, large particles of metabolic waste and excess tissue fluid are removed more quickly. This will reduce or prevent edema. Deep kneading has an effect on muscle tissue. Blood supply to muscles increases. Metabolic waste is removed more quickly, which will reduce pain and stiffness, especially after childbirth or heavy work. Fresh blood carries nutrients and oxygen to nourish muscle cells. This improves muscle tone and condition and is important for recovery. Slow, deep, rhythmic kneading increases blood supply and increases muscle temperature, providing a warm feeling that relieves tension and promotes relaxation. If the massage is done deeply and vigorously, the muscles become stimulated.

Warm muscles contract more efficiently and are more elastic than cold muscles. Kneading mobilizes tissues, increasing their extensibility and flexibility. This loosens fascia and adhesions, allowing freer muscle movement. Kneading deeply will press the tissue against the bone. This will stimulate the blood supply to the periosteum and bone, resulting in increased delivery of nutrients to the bone. Palmar kneading applies pressure to the tissue through the surface of the palm and fingers, as well as moving from superficial tissue to deeper tissue. Hands work in a circular motion, applying pressure at the top of the circle. This ensures that pressure is applied towards the venous return flowing to the heart and the lymphatics to the lymph nodes. The sebaceous glands are stimulated to produce more sebum, which keeps the skin soft and smooth. The sweat glands are stimulated and produce more sweat. Squeezing on the surface of the stomach in the direction of the movement of the large intestine will stimulate peristalsis (Mckechnie et al., 2007).

Friction or pressing is the manipulation of pressure at certain area points carried out with the finger or thumb. Massage is performed transversely across muscle fibers or in circular movements. Massage is a deep movement done with a lot of pressure. The pressure may be selected upon initiation and held, as usual with transverse friction, or the pressure may become progressively deeper, as with circular friction. Pressure increases circulation to the localized area, producing erythema. When pressure is applied to the ligaments and around the joint, circulation to the area increases, improving the nourishment of the ligament and joint structure and improving function. Movement of the tissues against each other will break down adhesions and mobilize the fibrous tissue. Deep friction will break up and disintegrate the fibrous nodules. Pressure massage will increase the extensibility of old scar tissue and help free the scar from the underlying tissue. When performed on both sides of the spine it stimulates the spinal nerves, producing a refreshing feeling (Laurianne M Loew, 2014).

CONCLUSIONS

Relaxation and fitness massage performed on postpartum mothers affects the recovery period which includes; Changes in the height of the uterine fundus (TFU), lochia color, healing of perineal wounds, back pain, thigh pain, calf pain and breast milk production (ASI) both before and after massage. Tests on the treatment and control groups after postpartum mothers received the 6th massage showed results of $p < 0.01$, but abdominal stretch marks and postpartum abdominal pain were $p < 0.05$, meaning that there is a difference in the effect of relaxation and fitness massage on postpartum recovery in postpartum mothers in both the intervention and control groups.

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