

Warm Steam Therapy to Increase Breast Milk Production of Post-Partum Mothers

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Abstract: One form of community independence in the vision of the Ministry of Health by building the empowerment of women and children directed at improving the quality of life and the role of women. In the postpartum period the mother cares for her baby with breastfeeding. To help the success in breastfeeding, warm steam therapy is needed to stimulate milk production. The purpose of this study was to determine the effect of warm steam therapy to increase maternal production of postpartum mothers. This research used quantitative and qualitative approach with mixed methodology design. Sampling technique used purposive sampling and obtained 32 people in treatment and 32 in control group. Quantitative analysis used independent and dependent samples test paired t-test and qualitative used non-statistical analysis through logical inference based on actual considerations and conditions. Result showed the average breast milk production before treatment was 97.19 with SD=15.077 and after treatment was 103.59 with SD=11,447. Treatment with warm steam therapy gave affects for the production of breast milk ($p=0.017$). Conclusions: treatment with warm steam therapy was very beneficial for the health of post-partum mothers. Therefore, warm steam therapy should be used as a model of post-partum maternal care at home.

1 BACKGROUND

Efforts to build self-reliance was to instill a proactive and not reactive or defensive. Independence was a dynamic concept because it recognizes that life and conditions of interdependence are constantly changing, both in terms of their constellation, their equilibrium, and their underlying and influencing values (RPJPN 2005-2025). The vision in line with the vision of the Ministry of Health is the realization of a healthy society that was independent and fair. Smooth public health, through community empowerment, including private (Depkes 2012).

The form of community independence is one of them by developing the empowerment of women and children directed at improving the quality of life and the role of women, welfare, and child protection in various fields of development (UU RI No.17, 2007). Improving the quality of children life was the improvement of the quality of Human Resources (HR). The basic capital of quality human resource formation begins since the baby is in the womb and from an early age. One of the things that can be done in optimizing the quality of human resources is the

provision of breast milk (breast milk) (Depkes 2012). WHO, UNICEF and the Ministry of Health support the government program in Global Strategy for infant and Young Child Feeding (GSIYCF) and Kepmenkes RI No 450 / MENKES / SK / IV / 2004 and Health Act No. 36 Year 2009 article 128 recommends breastfeeding.

Although the support and efficacy of breast milk was great but realizing breastfeeding by the mother to her baby was not always easy because many women have problems applied. Basic Health Research in 2010 noted that in Indonesia babies given breast milk by their mothers for 6 months only 15.3%, this figure was below the global exclusive figure breastfeeding that was 32.6%. The low rate of breast feeding prevalence by the mother to her baby one of them caused by the production of mother's milk was less.

Tasya (2010) stated that mother's mental and psychological factors have a big role in influencing milk production. Stress experienced by the mother will inhibit the release of the hormone oxytocin, if there was stress from breastfeeding mothers there will be a blockade of the reflux of oxytocin due to the release of adrenaline by stress hormones that

cause vasoconstricts blood vessel, so that little hope of oxytocin reaches the target organ mioepitelium (Hegar 2012).

Nowadays a lot of research that has been generated about the therapy can be done to obtain a relaxation of the physical and psychological condition of the mother post-partum. One therapy recommended by the Minister of Health is complementary therapy. Traditional complementary therapies or alternatively referred to as CAM (Complementary Alternative Medicine) were non-conventional treatments that are shown to improve community health status, including promotive, preventive, curative and rehabilitative measures obtained through structured education with quality, safety and effectiveness which is based on biomedical science.

Complementary therapy was strengthened in RI Law no. 36 of 2009 on Health, outlined in article 1 point 16. Traditional health services were medication and or treatment by means and medications that refer to empirical experience and hereditary skills that can be justified and applied in accordance with the norms prevailing in the community. This is reinforced by the Minister of Health Regulation No: 1109 / Menkes / Per / IX / 2007 regarding the provision of alternative-complementary medicine in health care facilities.

Steam therapies given to postpartum mothers can have vasodilatory effects on skin exposed to warm steam, then this provides a smooth flow of maternal blood flow to smooth. Heat from steam causes body heat to increase 1 - 20oC, in the presence of heating, the body's automatic mechanism is to fight to cool the body temperature. How to remove the sweat through the pores of the skin. Sweat itself is actually a mixture of water, minerals, fatty acids and toxins in the body. Heating also makes the blood vessels in the skin widen. As a result, the blood circulation becomes smooth so that the provision of nutrients to the body's cells and removal of metabolic waste from within cells or tissues, to be better.

Dilation of blood vessels also makes blood pressure in the body decreases slowly. Heart rate also increases. Every 10oC body temperature rise, the heart will work with 11 more pulses. Supplement oxygen to the muscles of the body also more and more. So, sweating a lot and circulating blood flow in the body will cleanse and revitalize the skin. Increased blood flow to the whole body of the mother impacts on the arousal LDR (let down reflex) is the reflex of milk expenditure. When the baby sucks, it will push the sinus and breast milk out through the holes in the nipple.

In Indonesia, post-partum treatment is done with steam boiled water (daily) such as in Sangihe Archipelago (Sulawesi), to restore body heat, give a drink of turi leaf juice, to compress the mother's head with leaf dregs, eat stew Ketapang tree skin restores health, treatment lasts 2 weeks to a month or 40 days (Sutanwijaya 2014).

The results of the research on post-partum mothers in the working area of Local Government Clinic Multiwahana Palembang, got statistical test result with p value = 0.001, it can be concluded that there was difference of milk production between the control group and the intervention group after the warm steam therapy of peppermint (Mediarti 2015).

2 METHODS

2.1 Study Design

The design of this research is Quasi Experimental pre and posttest with control group, mixed methods with explanatory sequential type. This method is carried out in sequence. Quantitative research method is firstly done the pretest and posttest of intervention, both to intervention group and control group. Quantitative data is obtained from the scale of clinical assessment of postpartum mother's milk production. Then proceed with qualitative research. Researchers use this design with the expectation of qualitative findings to help interpret or contextualize the results of quantitative research. Qualitative data obtained from interviews, observations and documentation of patient assessment regarding the treatment of warm steam therapy.

The research was conducted in the house of the post-partum mother in the Working Area of Local Government Clinic 23 Ilir Palembang. The study was conducted from 15 September to 28 December 2017

2.2 Study Population, Sampling, Inclusion Criteria

The population in this study was the mother of the partum who gave birth and domiciled in the city of Palembang. The sampling technique in this study used purposive sampling technique: the mother who gave birth at the maternity clinic in Local Government Clinic Area 23 Ilir Palembang. Then the patient was discharged and the therapy was carried out at the respondent's home. The sample in this study amounted to 32 people for each group.

For qualitative research, participants were taken from quantitative research samples, after data

saturation was obtained that is 10 participants, qualitative research was discontinued.

Inclusion criteria consists of willing to be researched, post-partum the first day, age of mother 20-35 years, no mental disorders, babies are not given formula milk, not experiencing physical illness or complications that accompany the mother (mother's nipple normal) and her baby (good baby suction reflex, BB born baby > 2500 gram)

2.3 Procedures

The data collected through interviews, participatory observation and document analysis are presented in fieldnote form, each of which is coded and records related to the research question. After going through data reduction or directly verified, the data from each research question is interpreted and combined with the result of analysis of research data of early stage (quantitative method), so that can be obtained by complete research result.

2.4 Data Analysis

Quantitative clinical assessment data and patient assessment data in qualitative form. To analyze the quantitative data used statistical analysis, while to analyze the qualitative data used non-statistical analysis through logical inference based on actual considerations and conditions. The form of the analysis of quantitative data with numerical use of mean, median, standard deviation, and minimum – maximum (Hastono & Luknis 2010). Descriptive analysis in this research is used to analyze data about the characteristics of respondents and research variables.

Statistical technique used to test the hypothesis using data difference test. The data collected is then tabulated by the researchers using computerized software. Furthermore, the data is tested normality to determine the type of test used to analyze the research. Normality test results are said to be normally distributed if $p > \alpha$ ($\alpha = 0.05$), so the formula used is t test. If the normality test results are abnormally distributed $p < \alpha$ ($\alpha = 0.05$) then use the test formula Wilcoxon Signed Rank Test and Mann-Whitney U Test.

In the final stage (qualitative method), qualitative data analysis is done by searching and arranging data systematically from interview transcript, observation, field notes and other materials to improve the researcher's understanding on the case studied and present it as research findings. Analysis

of data to be used using interactive models (Miles et al. 2014)

2.5 Ethical Clearance

This study has passed the review and certified of Ethical Approval with No. 656/KEPK-PTKMKS/XII/2017, December 12, 2017 that issued by Health Research Ethics Committee of Health Polytechnic Makasar.

3 RESULTS

3.1 Quantitative Results

The average number of mother's milk post-partum before treatment with warm steam therapy was 97.19 and standard deviation = 15.077. The average amount of breast milk after warm steam therapy was 103.59 and standard deviation = 11.447.

Based on the table 1 is known the most respondents of were multigravida respondents 62.5%.

Table 1: Distribution of Respondents Based on Gravida of Post-Partum Mother.

Gravida	n	%
Primigravida	12	37.5
Multigravida	20	62.5
Total	32	100

Table 2: Distribution of Respondents Based on Employment of Post-Partum Mother.

Employment	n	%
Not Work	14	43.8
Work	18	56.3
Total	32	100

Table 3: Distribution Average Number of Breastfeeding Post-Partum mothers.

Number of Breastfeeding			
Pretest		Posttest	
Mean	SD	Mean	SD
97.19	15.077	103.59	11.447

Table 4: Distribution of Average Breastfeeding Production Before and After Warm Steam Therapy.

Variable	Mean	SD	SE	P Value
Breastfeeding Production	- 6.406	14.325	2.532	0.017

Based on the table 2 is known that the number of respondents who work and does not work almost equal 18 (56.3%) and 14 (43.8%).

Result of statistic test got p value = 0.017, hence can be concluded treatment action with warm steam therapy affect to mother's milk production of post-partum.

3.2 Qualitative Results

3.2.1 Health Benefits

The informant explained that in addition to making the body fresh again and can restore stamina, since the girl has often used a steam bath, can make his skin white and clean even though he is often exposed to heat and dust due to his work selling in the market. In addition, it can treat rheumatism experienced so that when rheumatism or body feels stiff due to fatigue.

3.2.2 Get Rid of Body Toxin

The informant reveals that during pregnancy the pores are so wide open that toxins and unnecessary substances Mother can enter the body, and after delivery the mother usually still bleeds like menstruation, but even if the blood stops out in the body still perceived dirty blood that has not completely out of the body of the puerperal mother so, seeing it need to do a steam shower.

The informant also re-issued the dirty blood as usual in the form of spots or blood clots that are solid red, while for the poison itself is expelled through the sweat through the evaporation process.

4 DISCUSSION

The effect of steam therapy according to (Crinnion 2010) that was peripheral circulation increased 5-10%; circulation to the muscles, kidneys and visceral passages decreased; increased metabolic rate; increased oxygen consumption; liquid discharge; increased heart rate; decreased blood pressure; increase plasma cortisol, corticosteroids, growth hormone, TSH and prolactin; bronchodilation; muscle relaxation and decreased activity of the neuromuscular system; loss of water and electrolytes (Na, K, Cl) which are compensated by aldosterone hormone regulation in the kidney; lipolysis.

The heat of the environmental temperature will be accepted by the skin as a heat stimulus to the

central body temperature regulation of the hypothalamus. Thus, the body will try to maintain body temperature by increasing heat loss to the environment. Dilation of blood vessels and increased blood flow to peripheral areas attempt to get rid of body heat (Irianto 2014). Increased ambient temperature will reduce the heat gradient between the environment and the surface temperature of the skin and between the surface temperature of the skin and the core temperature. Although it was homoiotherm, but the human body temperature can increase if the increase in ambient temperature exceeds the skin temperature. Thus, the temperature in the steam room therapy bath can increase the body temperature of a person because the temperature is above the normal temperature of the human body (Indra 2011).

The increase in body temperature will stimulate increased metabolic processes of the body. Metabolism itself is all the chemical and energy reactions that occur in the body. While the metabolic rate or metabolic rate can be expressed as the rate of heat released during the occurrence of various chemical reactions in all body cells. Logically the more the body releases heat, the faster the rate of metabolism (Guyton & Hall 2014).

Increased metabolic rate due to high temperatures during steam bath therapy leads to an increase in blood flow in general. This is reinforced by the vasodilation (dilation) of blood vessels that cause the higher blood circulation. Increased blood flow and circulation in general will be followed by a rise in cardiac output. (Guyton & Hall 2014).

Cardiac output is an indicator of heart function. Cardiac output is also the amount of blood pumped by the heart in every minute. Thus, cardiac output is strongly influenced by the frequency of the heartbeat. Increasing the frequency of heart rate or pulse is the body's attempt to compensate for an increase in cardiac output (Hudak & Gallo 2010).

Increased metabolism in addition followed by an increase in pulse frequency, also accompanied by an increase in respiratory frequency. This is due to the need for metabolic processes to oxygen and the importance of removing carbon dioxide from the body. Metabolic rate is also closely related to respiration because respiration is the process of energy extraction from food molecules that depend on the presence of oxygen. This is what makes measurements of metabolic rate can be estimated by measuring how much oxygen is consumed by creatures of time union. The amount of oxygen the body needs during this metabolism is also known as the rate of oxygen consumption (Tobin 2009).

One of the factors that influence the high rate of metabolism followed by the rate of oxygen consumption is the temperature or temperature of the environment in which living are. Room temperature steam guidance range 38OC - 52OC can increase the rate of metabolism and the rate of oxygen consumption so that will be accompanied by an increase in respiratory frequency (Tobin 2009).

Breastfeeding in the postpartum period requires energy and causes fatigue because to meet the needs of the baby, the mother must be willing to give it on demand. The Wambach study (1998) in McGovern, Dowd, Gjerdingen, Gross, Kenney, Ukestad, et al (2006) reported that there was a significant relationship between breastfeeding with fatigue ($r = 0.38$, $p < 0.05$) at four measurements (3 days, 3 weeks, 6 weeks and 9 weeks post-partum).

(Aini 2015) showed that nursing mothers who are not relaxed in the state, the mind is not calm and feeling depressed so let down reflex will be hampered. This occurs due to the release of adrenaline which inhibits the oxytocin hormone work where vasoconstriction of vessels occurs so that oxytocin slightly reaches the organ of the myoepithelium to squeeze out the milk.

Oukup is a traditional Karo tribe sauna that utilizes the diversity of plant species as a herb for postpartum health and treatment of various types of diseases (Nasution 2009). It used to be done by cooking water that has been mixed with various spices to boil in a large cauldron. The steam that arises from that process will be absorbed by the body. Usually this is done Karo woman who gave birth to healthy and fresh again. Today, not only is done by Karo women who have just given birth but also performed by men and women, teenagers to old age and from various tribes. This steam bath can secrete toxins through sweat, cleanse the skin and stimulate circulation. This great public interest can be seen from the increasing number of places of business opened.

The results of research conducted by (Mediarti et al. 2015) about the influence of warm water vapor therapy of peppermint aroma to milk production in post-partum mother, obtained statistical test result p value = 0,084, hence can be concluded there is no difference of milk production between control group and group intervention before being given warm steam therapy peppermint scent. The result of statistical test obtained p value = 0,001, hence can be concluded there is difference of milk production between control group and intervention group after given warm steam therapy of peppermint aroma.

Engkartin et al (2013) The effect of therapy steam on the decrease of blood glucose level in patients with Type 2 DM in the work area of Local Government Clinic Bukateja, Purbalingga District, was the difference between blood sugar levels in the intervention group and control group after the intervention group was given steam sauna therapy (p -value = 0,000 $< \alpha = 0.05$).

Increased body temperature caused by sauna therapy leads to an increase in glucose or glucose metabolism and more open capillary meshes allowing more insulin receptors and more active insulin receptors to affect the decrease in blood glucose in people with diabetes mellitus (Aviv et al. 2010). This agrees with (Primadiati 2008) who argue that steam sauna therapy is good for diabetics as it can improve pancreatic function and other than that the resulting steam can help increase glucose metabolism in the body.

Research conducted by Kihara, et.al (2004) proves that a steam bath (sauna) can decrease cardiac arrhythmia in patients with chronic heart failure. (Raisanen et al. 2010) revealed that there are six benefits of steam baths that reduce stress, detoxify, make good sleep, relax muscles and relieve aches and pains in muscles and joints, improve heart work, fight disease and relieve stress.

The results of statistical tests showed a significant difference between mean respiratory frequency before and after treatment (p value = 0.000). Similarly, the mean frequency of pulses per minute, before and after treatment showed a significant difference ($p = 0,000$). The average of respiratory rate and pulse after treatment showed a significant increase compared to before treatment (Purnawan 2015).

The result of the analysis was obesity that a total increase in body fat where if found overweight $>20\%$ in men and $>25\%$ in women caused by fat. As a result of obesity or obesity will be a problem for health, such as coronary heart disease, diabetes. Prevention of obesity or overweight can be done by doing therapy or treatment. Steam therapy (saunas) in humans is done at 82° C twice the normal body temperature of 37° C, of course the sauna room temperature determination for humans. The saunas for relaxation are recommended 1-2 times in 2 weeks while for obesity therapy 1-2 times in a week, with a steam temperature of 180oF or 82oC, for approximately 15-20 minutes in a single treatment (Mualianda 2017).

5 CONCLUSIONS

Brooks.

Treatment measures with warm steam therapy have an effect on postpartum mother's milk production. p value = 0.017. Treatment with warm steam therapy was very beneficial for the health of post-partum mothers.

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