

## Optimizing the Combination of Oxytocin Massage and Hypnobreastfeeding for Breast Milk Production among Post-Partum Mothers

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### ABSTRACT

**Background:** The incidence of post-partum blues both in Indonesia and abroad has been quite high; the stress that post-partum mothers experience will inhibit breast milk production and, as a result, breastfeeding process should be stopped earlier. Hypnobreastfeeding relaxation and oxytocin massage have been a combination of therapy that might decrease the rate of Adenocorticotrophic Hormon (ACTH) and that might assist hormone and prolactin secretion in order that breast milk production becomes fluent. This study then aimed at analyzing the optimization of the combination of oxytocin massage and hypnobreastfeeding in order to decrease anxiety and to improve breast milk production among post-partum mothers.

**Subjects and Method:** This was an analytic experimental study with Randomized Control Trial (RCT) design. This study was conducted at Dr. Suradji Tirtonegoro Central General Hospital, Klaten, from January 25<sup>th</sup>, 2017 until March 9<sup>th</sup>, 2017. The population in this study was 200 post-partum mothers. A sample of 60 post-partum mothers was selected for this study and allocated into the intervention group (n<sub>1</sub>= 30) and the control group (n<sub>2</sub>= 30). The intervention group would be treated by the combination of oxytocin massage and hypnobreastfeeding. The dependent variables were anxiety and breast milk production. The independent variables were oxytocin massage and hypnobreastfeeding. The anxiety was measured by STAI scale. The breast milk production process was measured by checklist questionnaire. The breast milk production amount was measured by milking cups. The breast milk production between the two groups was tested by Mann-Whitney.

**Results:** The anxiety scale in the intervention group was better and lower than that of the control group. The differences in terms of anxiety scale between the intervention group (median= 24.00; SD= 4.45) and the control group (median= 34.00; SD= 6.93) were statistically significant (p<0.001). Then, the differences in terms of breast milk production process between the intervention group (median= 9.00; SD= 1.66) and the control group (median= 8.00; SD= 1.56) were nearly significant (p<0.145). Furthermore, the differences in terms of breast milk production amount between the intervention group (median= 10.00; SD= 10.36) and the control group (median= 4.50; SD= 4.21) were statistically significant (p<0.001).

**Conclusion:** Combination of oxytocin massage and hypnobreastfeeding can effectively decreasing anxiety and increasing breast milk production for post-partum mothers.

**Keywords:** oxytocin massage, hypnobreastfeeding, breast milk production, post-partum

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### BACKGROUND

Post-partum blues frequently occurs among mothers after they give birth. The stress that post-partum mothers experience might

inhibit the fluency of breast milk production (Dahro, 2012). Based on the results of several studies, it is reported that abroad post-partum blues has been 82.78% while

mothers who experience post-partum depression have been 17.21%. This incidence has been more frequently found among primigravida mothers (giving birth to baby for the first time) which is 68.00% (Rukh et al., 2013).

Based on the Department of Health Republic of Indonesia (2008) one of ten women who have just given birth to the baby is inclined to experience post-partum blues. One of the post-partum blues symptoms is anxiety. The anxiety that often appears among post-partum mothers, especially those who give birth to the baby for the first time, is the anxiety about taking care of their baby, the syndrome of not producing sufficient breast milk so that mothers consider that their baby has not been satisfied yet every time they finish the breastfeeding activities, the baby that cries most of time or the baby that denies the breastfeeding activities.

Psychological, social, and spiritual stress will influence hypothalamus and then will influence pituitary gland in order to express Adrenocorticotrophic Hormone (ACTH). This finally might influence adrenaline hormone (hormone that influences stress) and results in cortisol. When the amount of cortisol hormone is high, breast milk production will be inhibited (Christian, 2012).

Anxiety/stress that post-partum mothers experience has been a factor of risk that influences the early stoppage of breastfeeding process. This early stoppage contributes to the high rate of exclusive breast milk failure in Indonesia (Demilade et al., 2014; Sitepoe, 2013). Based on the latest analysis, it appears that the less optimum breastfeeding practice, including not providing exclusive breast milk, contributes approximately 11.60% to below five years old infant-death (WHO, 2014).

Based on the 2012 Indonesian Survey of Demography and Health (SDKI, *Survey*

*Demografi dan Kesehatan Indonesia*, 2012) the neonatal mortality rate (*Angka Kematian Neonatal*) in 2012 was 19 per 1,000 living birth. This figure is still very far below the target of sustainable development goal (SDG), namely to decrease the neonatal mortality rate into 12 per 1,000 living birth in 2030 (Kemenkes, 2014).

A relatively affordable and applicable action in order to improve new infants' health and survival rate is breastfeeding immediately after the childbirth, which has been known as early breastfeeding initiation (IMD, *inisiasi menyusui dini*), and providing exclusive breast milk. Fluent breast milk production has been the key of success in providing exclusive breast milk. The combination of hypnobreastfeeding therapy and oxytocin massage has been an intervention that holistically might be conducted in order to overcome the problems of anxiety. This therapy pays attention to body, mind and soul. The implementation of health science holistically should pay attention to the aspects of psychoneuro-endocrino-immuno (PNE-I) because the imbalance between mind and soul will result in balance disorder among nerve system, hormone and body immunity (Andriana, 2007; Andriani, 2014).

Hypnosis was admitted by the American Medical Association in 1957 as a useful therapy for overcoming multiple physical and emotional complaints. WHO has admitted hypnosis as a valid alternative therapy other than the western medical science. Relaxation for breastfeeding program is known as hypnobreastfeeding, in which this hypnotherapy is conducted by having direct contact to subconscious mind. When the body achieves a deep and stable relaxed condition, an individual might implant a new program or concept that will automatically influence his or her daily life and actions.

Oxytocin massage is a massage that involves alongside vertebrae and the fifth-sixth costae. The massage or the stimulation involved the vertebrae will cause neurotransmitter to stimulate medulla oblongata and this medulla oblongata will directly send a message to hypothalamus in posterior pituitary gland that it should produce oxytocin. As a result, the breast will start producing the milk. This massage will also relax the intense and will eliminate the stress (Astutik, 2014).

Studies related to effectiveness of oxytocin massage for breast milk production have been massively conducted, for example by Sulaeman et al. (2016), Kosova et al. (2016) and Morhen (2012), and the results of these studies showed that oxytocin massage has effectively been able to improve breast milk production among post-partum mothers and to decrease the rate of Adrenocorticotrophic Hormone (ACTH). Similarly, studies related to relaxation for decreasing anxiety among post-partum mothers have also been massively conducted. However, the studies related to the combination of oxytocin massage and hypnobreastfeeding have not been conducted yet.

Therefore, the purpose of this study was analyzing the optimization of the combination of oxytocin massage and hypnobreastfeeding therapy for breast milk production among post-partum mothers.

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## **SUBJECTS AND METHOD**

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This study was an analytic observational experimental study with Randomized Control Trial (RCT) approach. The design that the researchers implemented was completely randomized experimental design. The study was conducted from January 25<sup>th</sup> until March 9<sup>th</sup>, 2017 in Angrek Ward, Dr. Suradji Tirtonegoro Central General Hospital. The population in this study was 200 post-partum mothers who met the inclu-

sion and the exclusion criteria.

The subjects in this study were gathered by implementing the simple random sampling. The number of the sample was 60 post-partum mothers and these mothers would be divided into two group: 30 mothers would be put into the intervention group and 30 other mothers would be put into the control group. The intervention group would be provided with the combination of oxytocin massage and hypnobreastfeeding.

Data gathering was conducted by distributing checklist questionnaire in order to measure anxiety by using Spielberger State and Trait Anxiety Inventory (STAI). STAI had been a valid measurement tool for assessing anxiety and has been validated as well in order to be operated among perinatal population, starting from the third trimester in the pregnancy period until two-eight parturition visit. This measurement scale assessed separately the temporary anxiety (A-state) and the fundamental anxiety (A-trait) (Stuebe et al., 2013; Cox et al., 2015).

The inclusion criteria in this study were post-partum mothers in the first 48 hours, primigravida mothers and multigravida mothers with normal and sectio-caesarea childbirth without any complication such as sepsis, heart abnormality and pre-eclampsia during the parturition period who have already had seating mobilization during the 48 hours post-partum. The other inclusion criteria would be post-partum mothers who only breastfed their baby, post-partum mothers who breastfed their baby immediately and the baby was healthy, that did not have problems related to sucking reflex and that did not have congenital abnormality. On the contrary, the exclusion criteria would be post-partum mothers who did not do breastfeeding activities to their baby and the baby that was born premature

with weight <2,500 g.

Breastmilk production process was measured by distributing checklist questionnaire with criteria on breastmilk sufficiency both for infant and for baby and the total criteria in this questionnaire were 12. Breastmilk production process would have been good if the score  $\geq 6.00$  and, on the contrary, breastmilk production process would not have been good if the score <6.00 (Roesli, 2012). Breastmilk production amount was measured by measuring cups during the first 24 hours for every time the baby had breastfeeding activities should be approximately 6 ml (WHO, 2009).

The data normality were analyzed by Kolmogorov-Smirnov test. The researchers performed a statistical test by Kruskal-Wallis with post-hoc test by Mann-Whitney.

## RESULTS

### 1. Subjects' characteristics

Subjects' characteristics in Table 1 shows that 30 subjects in the intervention group has been provided with the combination of oxytocin massage and hypnobreastfeeding therapy and 30 subjects in the control group

has been explained based on characteristics, criteria, frequency and percentage. In terms of age, there were 22 mothers (47.80%) in the intervention group and there were 24 mothers (52.20%) in the control group whose age had been between 20-35 years old.

There were 16 mothers (66.70%) in the intervention group who had elementary school-junior high school degree and there were 22 mothers (61.10%) in the control group who had senior high school degree or higher. Then, there were 17 mothers (54.80%) in the intervention group whose income had been lower than minimum regional wage or higher and there were 16 mothers (55.20%) whose income had been equal to minimum regional wage or higher. There were 29 mothers (50.90%) in the intervention group and 28 mothers (49.10%) in the control group whose size had been equal to 23.5 cm or higher of upper arm circumference (MUAC) size. In terms of parity, 18 mothers (50%) in the intervention group and 18 mothers (50%) in the control group were multi-parity. Childbirth type 21 mothers (50%) in the intervention group and 21 mothers (50%) in the control group were normal.

**Table 1. Subjects' characteristics**

Characteristic	Criteria	Group			
		Combination		Control	
		n	%	n	%
Age	< 20 years old	2	100	0	0.0
	20-35 years old	22	47.8	24	52.2
	> 35 years old	6	50.0	6	50.0
Education	<Senior high school	16	66.7	8	33.3
	$\geq$ Senior high school	14	38.9	22	61.1
Income	< UMR	17	54.8	14	45.2
	$\geq$ UMR	13	44.8	16	55.2
MUAC	< 23.5	1	33.3	2	66.7
	$\geq$ 23.5	29	50.9	28	49.1
Parity	Primi	12	50.0	12	50.0
	Multi	18	50.0	18	50.0
Labor	SC	9	50.0	9	50.0
	Spontan	21	50.0	21	50.0

## 2. Bivariate analysis

The differences on anxiety and breast milk production amount among post-partum mothers between the intervention group and the control group were explained in Table 2. Based on the Mann-Whitney differential test, the researchers found that the combination between oxytocin massage and hypnobreastfeeding had significantly decreased anxiety with  $p < 0.001$ .

In average, the anxiety that the inter-

**Table 2. Mann Whitney Test for the variables of anxiety and breast milk production in both the intervention group and the control group**

Variable group	n	Mean	Median	SD	p
<b>Anxiety (STAI)</b>					<0.001
Combination	30	24.83	24.00	4.45	
Control	30	34.07	34.00	6.93	
<b>Breast Milk Production Process</b>					0.145
Combination	30	8.93	9.00	1.66	
Control	30	8.40	8.00	1.56	
<b>Breast Milk Production Amount</b>					0.000
Combination	30	13.07	10.00	10.36	
Control	30	5.17	4.50	4.21	

## DISCUSSION

### 1. The Influence of the Combination of Oxytocin Massage and Hypnobreastfeeding toward Post-Partum Mothers' Anxiety

The results of this study show that post-partum mothers who were provided with the combination of oxytocin massage and hypnobreastfeeding as their intervention display lower anxiety than the ones who were provided with the therapy combination. As a result, the researchers conclude that the therapy combination has been effective in decreasing anxiety among post-partum mothers.

Massage and relaxation might balance the hormone after mothers have their childbirth. During pregnancy, the rate of estrogen and progesterone hormone is increasing and after childbirth the rate of both hormones is decreasing; estrogen and progesterone hormone then are replaced by oxytocin and prolactin that influence breast

production process and amount. The intervention group experienced was lower than the control group with median that had been equal to 24.00. The therapy combination might also improve breast milk production amount with  $p < 0.001$ . In average, breast milk produced by the intervention group was 10 cc higher in terms of amount than the control group. In the same time, the therapy combination might improve breast milk production process with nearly significant ( $p = 0.145$ ).

milk production process and amount. Oxytocin is produced in hypothalamus and is sent altogether with secretoric neuron in order to be stored in posterior pituitary gland. Afterward, oxytocin will be released from hypothalamus after having been stimulated by both massage and baby suction (Dixon et al., 2013).

Soft and light touch provides calming effect for body. Massage as a non-pharmacology therapy for health treatment has been considered effective for diseases and conditions such as stress, constipation and insomnia (Ruffin, 2011).

Based on the results of this study, massage therapy might increase positive responses such as welfare, enjoyment and comfort and even massage therapy might decrease negative emotions such as anxiety, pain, stress, loneliness, meaningless and trauma due to physiological symptoms (Lindgren, 2012).

Massage around vertebrae or backbone might decrease noradrenaline hormone so that mothers will achieve a calm and relaxed condition. Noradrenaline hormone is a hormone that medulla produces and that affect sympathetic neuron system. During the massage process, serotonin and dopamine hormone are increased while norepinephrine and cortisol (stress hormone) are decreased. As a result, the secretion of oxytocin hormone becomes fluent (Moberg et al., 2013).

Another non-pharmacology therapy that might be performed in order to assist women, or mothers, in achieving a calm and relaxed situation is relaxation/ hypnosis. Hypnosis has been proven useful for women with physical and physiological symptoms during pregnancy, childbirth and parturition period. Based on the results of this study, hypnosis is able effective to decrease hyperemesis gravidarum symptoms during pregnancy, to decrease pain during pregnancy and to decrease post-partum depression syndrome (Beevi et al., 2016).

This is in accordance to the study by Teixeira et al. (2009) which shows that pregnant mothers in the intervention group who were provided with hypnosis intervention in the form of relaxation during early pregnancy period will have stress, anxiety and depression decrease when their pregnancy reached 36-week old in comparison to the control group that was not provided with the intervention. Hypnotherapy and hypnosis contributes to the decrease of anxiety and to the balance between body and mind.

Relaxation for post-partum mothers, especially breastfeeding ones, is commonly known as hypnobreastfeeding. Relaxation refers to method, process and procedure that might assist mothers to be relaxed, to achieve calmness, to decrease blood pressure and heartbeat and to slow breathing ac-

tivities. Hypnobreastfeeding is one of the relaxation techniques in the form of meditation that has been proven effective in decreasing stress among post-partum mothers. Based on the results of this study, performing relaxation practice for 10 minutes everyday has been significantly proven to decrease stress and anxiety among post-partum mothers.

Relaxation technique has been proven effective as a childbirth pain therapy and has been able to decrease anxiety and insomnia. Relaxation technique even has been able to cause individuals to control their emotions and behaviors. Relaxation is a physiological phenomenon that has been activated by parasympathetic neuron system and, as a result, anxiety will be decreased by facilitating endorphine secretion. After the muscle has been relaxed and there have been changes from sympathetic to parasympathetic neuron system, an individual will gain his or her relaxation. In this situation, an individual's attention is focused more on the physical activities so that he or she will be more relaxed because the individual is able to control emotion, anger and anxiety (Toosi et al., 2017).

In sum, the researchers conclude that the combination of oxytocin massage and hypnobreastfeeding relaxation have been effective in decreasing anxiety post-partum blues; in fact, the therapy combination might prevent post-partum depression if relaxation therapy has been conducted since the beginning of pregnancy period especially in the early stage. Massage and relaxation might be implemented as the best stress management and might stimulate the secretion of oxytocin and prolactin hormone among breastfeeding mothers so that the rate of exclusive breastfeeding activities might be improved.

## **2. The Influence of the Combination of Oxytocin Massage and Hypnobreastfeeding toward Breast Milk Process and Production among Post-Partum Mothers**

The results of this study show that the combination of oxytocin massage and hypnobreastfeeding were effective in decreasing anxiety and has been able to improve breast milk production among post-partum mothers in the intervention group than those in the control group that was not provided with the therapy combination as their intervention.

According to WHO (2009), in the first post-partum day the amount of colostrum that has been produced within 24 hours is 50 ml, while in the second and the third post-partum day the breast is able to produce milk approximately 300-400 ml. If the baby breastfeeds 8-12 times in a day, then the amount of breast milk production in the first day will be 6 ml while in the second and the third day the amount will be 50 ml.

Several factors that might inhibit breast milk production process and amount are namely anxiety, fatigue and stress/pain. On the other hand, the factors that heavily influence breast milk production process and amount is the baby's breastfeeding frequency. The more the baby breastfeeds, the better the breast milk production will be. Normally, the baby breastfeeds 8-12 times in a day (Roesli, 2012; Yancey et al., 2012).

Physical and mental conditions that mothers with sectio-searea childbirth experience and mothers with normal childbirth experience are different; as a result, these differences heavily influence lactogenesis process. Mothers with sectio-searea childbirth experience anxiety and limitation in the first 24 hours post-partum mobility; as a consequence, appropriateness delay in early breastfeeding activities often occurs

and this delay might influence the resulted breast milk production because the baby's breastfeeding frequency in the first 24 hours is still limited (Hobbs et al., 2016).

Hormone that influences lactogenesis is prolactine and oxytocin, which have heavily been associated to anti-depressant and anxiolytic. The results of several studies show that breastfeeding has been able to provide mothers' psychological health protection because it is able to weaken the stress hormone (cortisol hormone). As a result, the more the mother breastfeeds the baby the more increasing the prolactine and oxytocin hormone and the more breast milk will be produced (Figueiredoa, 2013).

Stress exposition both the physical one (pain) and the emotional one (anxiety) will activate endocrine system, namely hypothalamus-pituitary gland-adreanline (HPA) and sympathetic neuron system so that the production of stress hormone such as cortisol, corticotropic and catecholamylene is improved. Based on the results of this study, the improvement on the production of cortisol hormone will be followed by a high improvement of glucose rate. The high rate of cortisol hormone and glucose is associated to the delay of breast milk production and, thus, might cause the decrease of breast milk production in each breast within the first post-partum week (Coussons, 2012; Adedinsewo et al., 2013).

Hypnobreastfeeding relaxation and oxytocin massage is a therapy combination that might be holistically used for relaxation, decreasing stress and pain, fixing hormone regulation, lessening swell that appears in the early breastfeeding period and improving breast milk production (Metzger, 2013). This therapy combination might be performed in the first 24 hours for normal post-partum mothers; meanwhile, this therapy combination might only be performed by the post-partum mothers with

sectio-secrea childbirth after the first 24 hours due to the limited mobilization. Hypnobreastfeeding, if it is combined to oxytocin massage, might provided maximum results in order to decrease anxiety so that breastmilk production of post-partum mothers will improve.

Oxytocin massage might decrease the rate of cortisol hormone. Oxytocin provides very important effect toward an individual's psychological conditions. Oxytocin might induce calm and relaxed situation and might decrease stress/ anxiety. The presence of oxytocin might improve affection and intimacy between mothers and babies. One of the ways to assist the secretion of oxytocin is touching/ massage (WHO, 2009). Massage that is provided to post-partum mothers as a stimulus for improving the rate of oxytocin and prolactin in turn will influence breast milk production and release. As a consequence, it is possible to breastfeed the baby until the baby has reached the age of 6-months old. Thereby, massage contributes to breast milk production improvement and baby should be provided with healthy food without any additional nutrition until the baby has reached the age of 6-months old.

Hypnobreastfeeding relaxation is a relaxation technique that involves subconscious mind. Hypnosis is defined as a state of mind in which the function of logical analysis in the mind is reduced so that individuals are able to enter subconscious/ unconscious mind where they have multiple internal conditions that might be benefitted for improving their quality of life. Individuals who are in the condition of hypnotic trance will be more open toward suggestions and might be neutralized from multiple pain, trauma and even phobia. Individuals who experience hypnosis are still aware with their surrounding situations and

with multiple stimulo that therapist provides (Aprillia, 2010).

This relaxation technique has been the latest method and is very good for establishing positive intentions and motivations in breastfeeding activities. In the same time, it is also able to maximize breast milk quantity and quality. Phobia, anxiety and all existing negative suggestions inside the mothers' mind might be reprogrammed by positive suggestions in order that breast milk production will be fluent and sufficient in accordance to the baby's needs and breastfeeding will be comfortable and natural process. When these positive programs are implanted to subconscious mind, they will automatically influence the daily life and action so that mothers will have higher self-confidence (Andriana, 2007).

Based on the results and the discussions of this study, the researchers conclude that the combination of oxytocin massage and hypnobreastfeeding has been effective in decreasing anxiety and in improving breast milk production among post-partum mothers.

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