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The Role of Endorphin Stimulation, Oxytocin Massage and Suggestive Technique (SPEOS) in Improving Breast Milk Production among Breastfeeding Mother at Primary Health Center in Cimahi Tengah, West Java, Indonesia

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Abstract

Inadequate milk supply during the first few days' after delivery become a concern from most of the women. Indonesia Health Research and Development Agency in 2010 stated that the failure of exclusive breastfeeding commonly caused by insufficient milk production. The intervention of SPEOS (EndorphinStimulation, Oxytocin Massage, and Suggestive Technique) methods are offered to post-partum mothers in increasing breast milk supply. This study aimed to identify the influence of SPEOS on breast milk supply among post-partum mothers at Primary Health Care in Cimahi Tengah Indonesia. Quasi-experimental research with non-equivalent control group design was conducted. A total of 20 postpartum mothers were involved in this studyby using accidental sampling technique. The data were taken from March to April 2018 through observation on the amount of breast milk by pumping in two times observation including before and after the SPEOS method applied. The data were analyzed by t-independent test. Ethical approval was obtained from Health Research and Ethics Committee of Institute of Health Science Jenderal Achmad Yani Cimahi No. 005/KEPK/II/2018. The result shows that the intervention group produces more breast milk as much as 3,74 cc on the third daysof the experiment than the control group (2,04 cc). Bivariate analysis shows p value 0,001. Therefore, SPEOS methods gives significant influences on breast milk supply among post partum mothers. Conclusions SPEOS methods are effective in increasing low breast milk supply among post-partum mothers.

Keywords: Endorphin stimulation, exclusive breastfeeding, oxytocin massage, suggestive technique, SPEOS method.

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1. Introduction

Breast Milk production among post-partum mothers in the first few days of delivery ideally at the range from 50 – 100 ml per day and will continue to be increased [1]. However, some women have problems with insufficient milk supply. According to Ministry

of Health of Indonesia, the survey of Indonesian Health Research and Development Agency in 2010 shows that 46% cases of the exclusive berastfeeding failure among post-partum mothers commonly caused by insufficient milk supply. Furthermore, the research stated that 57% of post-partum mothers complain of poor milk production. The data indicated that insufficient milk supply is still being a major problem among post-partum mothers.

The problem of low milk supply often occurs in primiparous mothers since they more experience high fatigue, psychological disorders, and lack of knowledge after delivery (citation). Sari [2] stated that primiparous mothers had a lower exclusive breastfeeding rate (32,4%) if compared to multiparous mothers (40,0 %). It indicates that mothers with more than one child feel relax and more confident to breastfed their babies because they have more breastfeeding experience in the previous delivery (citation). Therefore, they have a higher breastfeeding rate compared to mothers who have given birth for the first time.

The problem of low milk supply also influenced by mothers' behaviour. Post-partum mothers who can't breastfeed their babies exclusively will decide to choose infant formula as an alternative way. However, it does not always give a positive impact. According to Nuriza (2013), the baby who consumes infant formula at the age of 0-6 months is susceptible to infection, which had an impact on suboptimal nutrient absorption, especially diarrhea. A newborn baby with infant formula has a higher risk of diarrhea as much as 4,14% than those who are breastfed exclusively. Besides, the risk of obesity also more high 4,3% among infant with formula than a breastfed infant [3].

Several methods are offered to help mothers increase milk production including oxytocin massage, marmet technique, breast care, warm and moist compresses, nutritious food supplementation, and SPEOS method [4]. However, the SPEOS method is the unique one since it combines oxytocin massage, endorphin massage, and suggestive provision to increase low milk supply. SPEOS method combines three mechanisms. The first, oxytocin massage which stimulates to release oxytocin hormone to increase breast milk supply. The second is endorphin massage; it is a technique with touch and the light massage that can stimulate and release the endorphine hormone. This hormones also have an effect to stimulating prolactin and oxytocin hormones, which give relaxing condition of post-partum's body. The third is a suggestive provision, which focuseson positive affirmation to provide confidence amongbreastfeedingmothers. It supportsmothers that they able to breastfeed their babies and breastfeeding are fun and easy activity [2]. The purpose of this study was to identify the influence of SPEOS method on breast milk supply among post-partum mothers.

2. Method

2.1. Design and Sample

A quasi-experimental design with non-equivalent control group design was conducted. The participant was recruited if met several criteria such as primiparous mothers who have normal (vaginal) birth, without nipple disruption and the baby's weight ≥ 2500 gr,the baby should feed at least 8 times or more every 24 hours during the first few weeks after birth. A total of 20 respondents involving in this study and separated within two groups, 10 subjects in the intervention group the control group, respectively. Accidental sampling was used as sampling methods. This study conducted at Primary Health Center(Puskesmas) inCimahi Tengah, West Java from March toApril, 2018.

2.2. Procedure

Observation and breast milk measurement were the techniques of data collection. It began with the selection of the respondents. Sampling was taken from Midwifery and Primary Health Center of Cimahi. This process conducted step by step. When the new post-partum mothers came to the room, they will be seen whether they are apropriate or not with the criteria.If the patients met the inclusion criteria, they received an explanation and were asked for approval to sign inform concent. The first 10 ofrespondents were included in the intervention group and made the contract for intervention on the next day. Then, 10 ofrespondents who met the next criteria were put into the control group and made a contract to observe the amount of milk productionin the next day.

2.3. Intervention group

Data collection was conducted firstly in the intervention group on the second day of post-partum. Before the intervention was carried out, the researchers started to breast pumped manually for at least 15 minutes. Then, the amount of breast milk was measured with a ten cc syringe, and documented on the observation sheet. Pumping sessions for at least 15 minutes must be done since the average body will reproduce hormones that affect to milk supply after the breast are completely empty (Supriatin, 2015). The intervention was conducted three times for 15 minutes in a day, including in the morning (07.00 WIB), in the afternoon (12.00 WIB) and the evening(17.00 WIB). Post-test of breast milk measurements were taken in 15 minutes after the third intervention applied.

2.4. Control group

Data collection on the control group was conducted after the number of respondents on the next intervention group has been reached. The measurement began on the second day of post-partum. The first measurement of breast milk was carried out in the morning at 07.00 WIBwhile the second measurement in the afternoon at 17.00 WIB.

The process of data collection and the implementation and intervention of SPEOS were assisted by two assistants; they were nursing students at 4th level who have passed maternity nursing courses successfully. They also learned about SPEOS procedures, pumping and measuring breast milk, and began to practice. Then, they would give an intervention if the respondents were more than two people in 1 day.

2.5. Intervention Protocols

The first steps in applying this method are preparing some equipments, washing hands, setting a relaxand private room, adjusting the mothers' position by sitting lean to the front and puttheir head on the arms. Then, the implementation step includes lead mothers to have a deep breath and starting to give suggestions that can increase the mother's confidence and guide to imagine about their babies. While the suggestion given, the endorphin stimulation is conducted and continue to oxytocin massage. The last step is washing hands and evaluating the respond of the respondents. This procedure is carried out for at least 15 minutes.

2.6. Data Analysis

Statistical analysis was carried out using the SPSS statistical program version 22. The data from both the intervention and control groups are analyzed for normality test using Shapiro Wilk. The finding shows that the data are normally distributed. Furthermore, the data on the amount of milk production before and after the intervention conducted are described using mean and standard deviation. The type of statistical test used parametric statistics using t-independent test analysis technique [5].

2.7. Ethical Consideration

Ethical approval ofthis study was obtainedfrom The Health Research and Ethics Committee of Institute of Health Science Jenderal Achmad Yani Cimahi No. 005 / KEPK / II / 2018.

3. Results

3.1. Demographic Characteristics

The result of univariate analysis are shown in the table 1.

TABLE 1: The Average of Milk Production in Intervention dan Control Group.

Group	Treatment	Mean	SD	SE	N
Intervention	1^{st}	0.22	0.2201	0.069	10
	2^{nd}	2.04	0.462	0.1462	10
Control	1^{st}	0.34	0.34	0.1077	10
	2^{nd}	3.76	1.106	0.3500	10

The results showed that the intervention group produced more breast milk than the control group. It explained in table 1 and table 2.

TABLE 2: The Average of Milk Supply in Control Group.

Group	Mean	SD	SE	N
First treatment	0,22	0,2201	0,069	10
Second treatment	2,04	0,462	0,1462	10

Table 1 showed that the amount of breast milk increased as much as 1,8 cc between the first and the second treatment in control group.

TABLE 3: The Average ofMilk Supply in Intervention Group.

Group	Mean	SD	SE	N
Pretest	0,34	0,34	0,1077	10
Postest	3,76	1,106	0,3500	10

Table2 showed that the amount of breast milk were increase as much as 3,42 cc in intervention group.

Table 3 reflected that the intervention group had a higher average ofmilk supply than the control group. The result of bivariate analysis found that p-value was 0.001 which was smaller than the degree of error, $\alpha = 0.05$,and the value of t-count is 4.535 that is greater than t-table = 2.100. Therefore, SPEOS method had significant effect toincrease

Table 4: The Influence ofSPEOS on Milk Production among Primiparous Mothers.

Group	Mean	SD	SE	N	P value
Intervention	3,76	1,106	0,3500	10	0,001
Control	2,04	0,462	0,1462	10	

breast milk supply among primiparous mothers in Primary Health Center of Cimahi, Indonesia.

4. Discussion

The increase of breast milk production was experienced by control group. It explained by Bahiyatun (2008), the production of breast milk will increase gradually after delivery because prolactin hormone which is responsible for stimulating milk production will gradually increase when progesterone and estrogen hormones reduced, and human placenta lactogen (HPL) decreased. It takes about 30-40 hours after delivery, and the breasts are full of milk supply at 50 - 73 hours or 2 to 3 days after delivery. Therefore, this reflects the natural physiological process.

Another factor contributed to increase milk supply is the frequency of breastfeeding.Mothers who breastfeed their babies frequently will stimulate oxytocin release resulting in the empty of breast milk that triggers to the increase milk production (Siregar 2004 in Christin, 2016). This condition occurred in the control group because it determined by the criteria of the sampling. In fact, the respondents'werebreastfedat least eight times in a day. The otherfactor is the proper breastfeed position, it helpsto stimulate reflexes that produce more breast milk production [6].

Even the breast milk were increased to 1,8 cc in the control group,it still in low rate of milk supply. According to The Academy of Breastfeeding Medicine Protocol Committee (2008), milk production will normally increasefrom 5 to 15 ml/ 15-25 minuteson the second day after delivery. Milk production among breastfeeding mothers is influenced by several factors, especially comes from mother's herself, such as fatigue, anxiety, pain and insecurity (Astutik, 2014). The respondents in this study involved breastfeeding mothers who passed one day after delivery, where they still experienced psychological adaptation. In this phase, they generally show more dependence and focus on themselves. Furthermore, they generally experienced fatigue and pain especially primiparous mothers, and they felt unconfident to breastfeed their babies. All of these problems unconsciously reduce milk supply. Jane [7] states that milk ejection reflex is very sensitive to the inhibition of physical and psychological disorders including

fatigue, negative emotions, and anxiety. Therefore, the body system will automatically give negative response that affect to the production of oxytocin hormone.

The results of this study found that the increase in milk production after the intervention was greater in the intervention group than a control group. The result was supported by the previous studies using the SPEOS method as a method to increase breast milk among post partum mothers [8]. The SPEOS method affects to milk production in several mechanisms since it involving the combination of three methods, including endorphin stimulation, oxytocin massage, and suggestive provision. The methods are synergistically worked to reduce the fatigue, anxiety and pain after labour, then expected to stimulate relaxing effect which facilitates the breastmilk production.

The first mechanism is endorphin stimulation worked by a light touch to stimulate the pituitary gland to produce endorphin hormone. It works as a natural anti-pain in the body where the hormone endoprhin can prevent nerve cells to perceive pain. Another reaction produced by endorphin hormone is a calming effect [9]. This massage relieves pain and tension commonly felt by primiparous mothers. Another mechanism of SPEOS is oxytocin massage. It worked by a massage on the back muscles along the spine that able to provide nerve impulses in the spinal cord to be transmitted to medulla oblongata to hypothalamus. Thus, hypothalamus will produce oxytocin hormone which is flowed into the posterior pituitary, and it released into the blood. The hormone is carried by blood into the ductus asini which caused a let down reflex [10]. So, the breast milk supply increased. Furthermore, it will stimulate the production of prolactin hormone which stimulate the production of breast milk by these cells. This oxytocin massage will provide comfortable, reduce swelling and the inhibition of breast milk, and relieve stress [11]. The third mechanism is suggestive provision. This step provides positive suggestion to give positive mind-set that all of mothers are definitely able to produce enough breast milk supply and breastfeeding as positive activity. This positive suggestion lead to a sense of calm and confidence that will increase milk supply [9].

Based on the explanation, SPEOS method were not only focused on the physical conditions but also psychological conditions as thereasons to increase milk supply. In fact, the explanation of Prawirohardjo [12] proved that these 4 factors are efectively influence on milk supply, one of them is a psychological factors.If mother are in under pressure or feels restlessness, depressed, and various other forms of psychological problems, it will be able to inhibit milk production. Giving SPEOS method helps to create a special relationship between the motherand the baby, increase self-confidence and independence by reducing anxiety, fatigue, pain, and stress [13].

5. Conclution

SPEOS methods are effective in increasing low breast milk supply among post-partum mothers.

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