

Original Article

The Impact of the SPEOS Method on Boosting Exclusive Breastfeeding Rates among Postpartum Women

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ABSTRACT

Background: UNICEF reports that every year, 2.6 million infants worldwide die within their first month of life. One of the determining factors is exclusive breastfeeding. WHO emphasizes the importance of exclusive breastfeeding until 6 months of age without additional food and drink. In Indonesia, the coverage of infants receiving exclusive breastfeeding reached 67.74%, but exclusive breastfeeding is only given to one in two infants under 6 months. Lack of exclusive breastfeeding means infants are not getting adequate nutrition. **Objective:** This study aimed to evaluate the effectiveness of the SPEOS method in increasing exclusive breast milk production in postpartum mothers. **Methods:** This study used a quasi-experimental method with a sample of 30 postpartum mothers who were divided into two groups: (1) experimental group that received SPEOS massage method for 10 minutes, and (2) control group that did not receive the intervention. The dependent variable was breast milk production, while the independent variable was massage using the SPEOS method. Data were collected by measuring breast milk volume (ml) and analyzed using t-test. **Results:** The results showed that the SPEOS method was effective in increasing exclusive breast milk production ($p < 0.001$). The SPEOS method proved to be an effective way to increase exclusive breast milk production in postpartum mothers. **Conclusion:** The SPEOS method can increase breast milk production, so it needs to be socialized to postpartum mothers by health workers to increase the achievement of exclusive breastfeeding in infants.

KEYWORDS

Exclusive breastfeeding, SPEOS, Exclusive breast milk production

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INTRODUCTION

UNICEF reported that 2.6 million babies worldwide died in their first month. Pakistan has the highest infant mortality rate, with 22 babies dying before the age of 1 month, followed by South Africa and Afghanistan. However, Japan has the lowest infant mortality rate, with only 1 death out of 1,111 births [1]. The UNICEF and WHO asserted that all countries provide full access to services for breastfeeding mothers during COVID-19, aim to maintain the child's life, and build the child's antibodies to protect them from various diseases, including diarrhea and pneumonia. Globally, an increase in the number of breastfeeding mothers has the potential to save >820,000 toddlers and prevent >20,000 breast cancer cases every year. However, >40% of infants less than 6 months of age introduced complementary foods too early and often did not fulfill the infant's nutritional needs [1,2].

Nationally, the exclusive breastfeeding coverage in 2019 was 67.74%, surpassing the goal of the National Strategic Plan 2019. West Nusa Tenggara achieved the highest coverage, while West Papua achieved the lowest coverage. Gorontalo, Maluku, and Papua have not yet achieved this goal. This proves that half of the Indonesian children did not have enough nutritional needs during their two years, and only one out of two babies under six months of age received exclusive breast milk [3]. According to National Health Research (2018) [4], the coverage of early initiation of breastfeeding increased significantly, by 58.2% from 5 years before to 34.5%. Bekasi also reached the coverage target of 70.22%

According to the World Health Organization (WHO), exclusive breastfeeding is provided by mothers without additional food and drinks from birth to 6 months [5–7]. Breastfeeding is able to bond emotionally with mothers and their babies, behind optimal parenting, to provide their child with health and independent resilience [8]. However, inhibited and reduced breast milk production causes mothers to not provide sufficient nutrition for their baby. The lactation process depends on prolactin levels. Oxytocin from the posterior pituitary plays a role in the nipple suction reaction, where the mammary alveoli contract and express breast milk from the mammary gland. However, oxytocin levels are affected by the mother's psychological situation. If the mother feels anxious, stressed, or hesitant, breast milk production will be inhibited [9,10].

Many methods can be used to stimulate the oxytocin reflex. Nugraheni [9] stated that the SPEOS method could increase breast milk production in postpartum mothers and increase baby weight gain. Melyansari [10] also stated that the SPEOS method affects breast milk production for babies. These studies confirm that the Endorphin, Oxytocin, and Suggestive Massage Stimulation (SPEOS) method is an effective alternative for solving breastfeeding problems in postpartum mothers to provide optimal nutrition to their children. This method involves assessing the psychological aspects of breastfeeding mothers in addition to physical aspects [11]. This study aimed to evaluate the effectiveness of the SPEOS method in increasing exclusive breast milk production in postpartum mothers.

MATERIALS AND METHODS

The study design was a quasi-experiment [12] carried out at the Bekasi midwife practice, from July to August 2021. The population and sample of 30 postpartum mothers were collected and divided into two groups: (1) The experimental group received the SPEOS massage method for 10 minutes, and (1) The experimental group received the SPEOS massage method for 10 minutes, and (2) Control group that received no intervention. The sampling technique was taken by total sampling with inclusion criteria, willingness of informed consent, and health conditions of the mother and baby. Study Variable, namely the dependent variable is breast milk production. The independent variable is massage using the SPEOS method. This research instrument uses observation with a checklist sheet. Milk volume before and after giving SPEOS was measured in ml. Analysis was carried out using the t-test ($p < 0.05$).

RESULTS

The table shows that in the intervention category, the average breast milk production before the SPEOS intervention was approximately 66.00%, and that after the SPEOS intervention was

approximately 84.00%. We also found that in the control category, the average percentage of breast milk produced before and after SPEOS was approximately 60.67% to 63.33%, respectively. The standard deviations in the intervention category were 14.041% in the pretest group and 9.856% in the posttest group. The standard deviations in the control category were 10.998% and 12.344%, respectively. Minimum and maximum values in the intervention category; pretest 50-90 and posttest 70-100. The minimum and maximum values in the control category were 50-50, and those in the posttest were 50-80.

Table 1. Distribution of the average breastfeeding production before and after the SPEOS method intervention at the Bidan Dini Maternity Center North Bekasi 2021

Variabel	Groups	Mean		Std. Deviation		Min – Max	
		Pretest	Posttest	Pretest	Posttest	Pre test	Posttest
Breast Milk Production	Intervention	66.00	84.00	14.041	9.856	50-90	70-100
	Control	60.67	63.33	10.998	12.344	50-80	50-80

The table 1 and 2. shows that the average breast milk production before the SPEOS method was 66.00, with a standard deviation of 14.041, and after the SPEOS method was applied, it was 84.00, with a standard deviation of 9.586. At the same time, the deviation of breast milk production before and after the test was -18.00, with a standard deviation of 4.185 and a *p value* of 0.001 We also found in the control category that the average breast milk production without the SPEOS method was -2.66 (mean value), with a standard deviation of -1.346 and a *p value* of 0.104. These studies prove that the SPEOS method is effective for increasing breast milk production because there is a significant deviation between the SPEOS and SPEOS methods.

Table 2. The Effectiveness of the SPEOS method in increasing breast milk production in Postpartum Mothers, Bidan Dini Maternity Center North Bekasi 2021

Category	Breast Milk Production	Mean	SD	p-value
Intervention	Pre test	66.00	14.041	<0.001*
	Post test	84.00	9.856	
	Deviation	-18.00	4.185	
Control	Pre test	60.67	10.998	0.104
	Post test	63.33	12.344	
	Deviation	-2.66	-1,346	

Remarks: * indicates statistical significance at $p < 0.05$

DISCUSSIONS

The SPEOS method (endorphin-oxytocin massage and suggestive stimulation) involves a combination of endorphin massage, oxytocin massage, and suggestive or positive affirmation to facilitate breastfeeding [13]. Psychological adaptation stimulation is also important so that exclusive breastfeeding can fulfill a baby's nutrition by mothers [6,8]. Endorphin massage is performed to relieve pain from the pituitary gland, where endorphin binds to nerve receptors in the brain. Endorphins are polypeptides related to opioid receptors generated by the brain, spinal cord, and other nerves [14]. Oxytocin massage is performed to stimulate oxytocin, which involves massage along the spine (5-6th costae to scapula) to accelerate the parasympathetic nerves (originating from the medulla oblongata, sacrum and spinal cord) [6,15]. This massage stimulates the posterior pituitary gland and produces an oxytocin reflex, where oxytocin stimulates smooth muscle cells, which twine the ductus lactiferus in mammary glands and cause myoepithelial contractility, subsequently smoothing the flow of breast milk in the mother's breast [16,17].

Suggestive or positive affirmation makes mothers grateful for God's blessings, and the whole organ produces good substances that make a fit and healthy body, including breast milk [18,19]. Otherwise, if mothers are always thinking negatively or feeling doubtful about stress, the cells and mammary glands will inhibit breast milk production. Generally, positive affirmation is defined as "if I always think something positively, stress will not come" because the body and

soul never stop the dialog. Therefore, something in our mind is not just an abstract concept because it is physically active [16,20]. Research studies have been conducted to investigate the influence of the SPEOS method on breast milk production in postpartum mothers. Studies by Nugraheni [9] and Melyansari [10] found that the application of the SPEOS method can increase breast milk production. It's important to note that factors such as psychological adaptation, diseases, and nutrition can also affect breast milk production in postpartum mothers [21,22]. Psychological factors, such as stress and negative thoughts, can inhibit breast milk production, while a healthy diet and overall well-being can support optimal milk production. The SPEOS method combines endorphin massage, oxytocin massage, and suggestive techniques to facilitate breastfeeding and increase breast milk production in postpartum mothers. This non-pharmacological approach has shown positive effects in research studies [23,24].

Breast Milk Production Before and After SPEOS

We found that in the intervention category, the average breast milk production before the SPEOS method intervention was approximately 66.00%, and after the SPEOS method intervention, it was approximately 84.00%. We also found that in the control category, the average percentage of breast milk produced before and after SPEOS was approximately 60.67% to 63.33%, respectively. The standard deviations in the intervention category were 14.041% in the pretest group and 9.856% in the posttest group. The standard deviations in the control category were 10.998% and 12.344%, respectively. Minimum and maximum values in the intervention category; pretest 50-90 and posttest 70-100. The minimum and maximum values in the control category were 50-50, and those in the posttest were 50-80.

This study is in line with the research conducted by Melyansari [10] in Pekanbaru, where the SPEOS method affected breast milk production in postpartum mothers ($p = 0.00$). A study by Elisa et al. [25] at the Mardi Rahayu Maternity Center Semarang also revealed that the SPEOS method affects breast milk production according to the Wilcoxon test ($p = 0.00$). This study agreed with the theory that massage along the spine to the costae and helping with positive affirmation could stimulate prolactin and oxytocin so that breast milk production will flow smoothly. The SPEOS method also provides comfort and reduces engorgement among postpartum mothers. According to our analysis, the inhibition of breast milk production is caused by a lack of prolactin and oxytocin [26,27]. An imperfect baby sucking, getting old, or a small mother's nipple reduces prolactin and oxytocin hormone levels in the breasts. As a complementary therapy, the SPEOS method can increase breast milk production [28,29]. We believe that the SPEOS method physiologically stimulates the medulla oblongata by providing an oxytocin reflex from the hypothalamus and posterior pituitary gland.

Effectiveness of the SPEOS Method in Increasing Breast Milk Production in Postpartum Mothers

We found in the intervention category that the average breast milk production before performing the SPEOS method was 66.00, with a standard deviation of 14.041, and after performing the SPEOS method, it was 84.00, with a standard deviation of 9.586. At the same time, the deviation of breast milk production before and after the test was -18.00, with a standard deviation of 4.185 and a p value of 0.000. We also found in the control category that the average breast milk production without the SPEOS method was -2.66 (mean), with a standard deviation of -1.346 and a p value of 0.104. These studies prove that the SPEOS method is effective for increasing breast milk production because there is a significant deviation between the SPEOS and SPEOS methods.

This study is in line with the research conducted by Sari [11], study used a quasi-experiment for 38 respondents over 3 days (30 min per day), and the results showed that there was a significant difference between the SPEOS method in the intervention category ($p = <0.001$) and the SPEOS method in the control category ($p = 0.004$). In this study, all respondents who used the SPEOS method increased their breast milk production because all mothers were aged 36-37 years. Younger mothers may be able to produce more breast milk, but not all older mothers will inhibit breast milk production. This could be caused by the good psychological and nutritional

needs of the mothers. According to the theory and studies above, we thought that with the SPEOS method for postpartum mothers, increasing oxytocin and prolactin would allow smooth breast milk production [30,31]. This will reduce engorgement and breast milk blockage, so mothers could have a relaxed, restful, and comfortable position to breastfeed their babies. Continuous breast milk production can be affected by maternal age, physiological and nutritional needs, and psychological factors [32–35]. The SPEOS method must be performed with the correct procedure so that breast milk can flow smoothly [8,13]. This is an alternative complementary therapy for mothers to increase breast milk production. It is evident from our research that after performing the SPEOS method, respondents who experienced breastfeeding insufficiency could produce breast milk smoothly.

CONCLUSIONS

The SPEOS method is considered very effective in increasing breast milk production. This intervention using the SPEOS method is expected to increase breast milk production sustainably without concern. Health protocols and services for postpartum mothers are also expected to improve so that mothers and their families can meet midwives/nurses/doctors without concern during the COVID-19 pandemic.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

AUTHOR CONTRIBUTIONS

Conceptualization: MBK, ET; Methodology: MBK, ET; Software: MBK, ET; Validation: MBK, FS, ET; Formal analysis: MBK, ET; Investigation: ET, FS; Resources: MBK, ET; Data Curation: MBK, FS; Writing - Original Draft: MBK, FS; Writing - Review & Editing: MBK, FS; Visualization: MBK, ET; Supervision: IMDM, ET.

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