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RESEARCH ARTICLE
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Effectivity of the SPEOS Method and the Marmet Technique Combination on the Milk Ejection of Postpartum Women

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ABSTRACT

Breastmilk is the most important food for babies, especially in the first months of their lives. There is usually the problem of milk ejection on the first day after giving birth. The development of the SPEOS Method and the Marmet Technique may be used to aid postpartum women on the breastmilk ejection, considering that the provision of exclusive breastmilk is highly dependent on the first days after birth. This study used the quasi-experiment design with the posttest only design with a control group. The population was postpartum women in the area of Lembeyan Community Health Center with the Consecutive sampling technique. The sample 40 mother (10 mother in in SPEOS group, 10 mothers in Marmet group, 10 mothers in Combination SPEOS and Marmet group, and 10 mother in control group). The independent variable was the combination of the SPEOS Method and the Marmet Technique. The dependent variable was the breastmilk ejection on postpartum women and the increase of the babies' weight. Breat milk data were collected by questionare and the babies's weight collected in 7th day. The results of the research showed that the combination of the SPEOS Method and the Marmet Technique is effective in increasing the breastmilk ejection and in increasing the babies' weight, with the significant value of the *Manova* test (p-value = 0.000). The combination of the SPEOS Method and the Marmet Technique is highly effective in increasing milk production and baby weight.

Keywords: SPEOS method; marmet technique; breastmilk expresion; baby weight

INTRODUCTION

Background

Breastmilk is the most essential food for babies, especially in their first six months of life. There is a basic problem that often causes mothers to experience confusion and, in the end, choose other alternatives in fulfilling the babies' needs. The most basic problem is the failure to express breastmilk.

The data on the Health Research and Development Agency[(1)] in 2013 showed that the scope of breastmilk in Indonesia is only 42 percent. This percentage is clearly below WHO's target, which obliges the breastmilk scope to be 50%. The data from the Magetan Health Service shows that the achievement of exclusive breastmilk is 67, 27% in 2017. This percentage is far below the target of 95%.

The cruciality of breastmilk for babies is reflected in the recommendation of the World Health Organization (WHO) cited by Bobak[(2)], which suggests all mothers give exclusive breastmilk to babies until they are six months of age. According to the data of UNICEF[(3)], the babies who receive exclusive breastmilk are 14 times more likely to survive the first six months compared to those who are not breastfed. Initial breastfeeding since the first day of birth may decrease the risk of infant mortality by up to 45%. The research carried out by Biancuzzo et al.[(4)] in Kilimanjaro, Tanzania showed that exclusive breastfeeding (EBF) is effective in preventing infant mortality up to 13 % - 15 %.

Nationally, the scope of exclusive breastfeeding or babies 0-6 months in Indonesia fluctuates in the last four years. According to the data of Sastroasmoro[(5)], the scope of EBF is 34,3% in 2009. In 2010 it is shown that it is only 33,6%. Then, the percentage increased to 42% in 2011. Then, according to Hormann[(6)], in 2012 the scope of EBF is 27%.

Some methods which are developed to increase the breastmilk expression on the first days of the babies' lives are the Method of "*Stimulasi, Pijat Endhorphin, Oksitosin, dan Sugesti* (SPEOS)" / Stimulation, Endorphin Massage, Oxytocin, and Suggestive and the Marmet Technique. The SPEOS Method is carried out by combining

the endorphin massage, the oxytocin massage, and suggestive/positive affirmation. The SPEOS Method aims to help to breastfeed postpartum women to ease the milk expression through oxytocin hormone stimulations, so that the exclusive breastfeeding program may be reached. The concept of the SPEOS Method is that breastfeeding mothers are not only viewed or supported through the physical aspects only. But the psychological adaptations also become the object of analysis, as the oxytocin hormone is highly sensitive to the mothers' psychological condition. Then, the Marmet Technique is a combination of squeezing and massaging techniques. The squeezing is carried out by using the hands and fingers. The advantages are that the negative pressures may be controlled, it is simpler and more economic.

The problem of this research is, "How effective is the combination of the SPEOS Method and the Marmet Technique towards the breastmilk expression on postpartum women and the increase of baby weight?" Then, the objective is to analyze the effectiveness of the combination of the SPEOS Method and the Marmet Technique towards breastmilk expression on postpartum women and the increase of baby weight.

METHODS

The research design used was the quasi-experiment research with the posttest only design with a control group. The independent variable was the combination of the SPEOS Method and the Marmet Technique. The dependent variable was the breastmilk ejection on postpartum women and the increase of the babies' weight.

The research was carried out from June to September 2018. The population was postpartum women in the area of Lembeyan Community Health Center. Technique sampling were accindental sampling. With the respondents of 40 postpartum mothers in the work area of Lembeyan Community Health Center, Magetan Regency. Sample were 10 mother in SPEOS group, 10 mothers in Marmet group, 10 mothers in Combination SPEOS and Marmet group, and 10 mother in control group. Data were collected from all respondents, which include information on respondents' characteristics, the treatments to increase the breastmilk expression using checklists. The baby weight was measurement at 7th day. The ejection of milk was ratio data, baby weight also ratio data. The data were normally, so the data were analyzed using the Manova test.

RESULTS

Characteristics of Respondents

Table 1. Frequency distribution of respondents' characteristics

Characteristics of respondents	Frequency	Percentage
Age		
20-35 years old	40	40
≥ 36 years old	-	-
Parity		
Primigravida	19	19
Multigravida	21	21
Education		
Elementary	4	4
Junior/Senior High	36	36
College	-	-

The characteristics of the respondents are aged 20-35 years (100%), with the primigravida parity of 19 respondents (47,5%) and multigravida of 21 respondents (52,5%). The elementary educational background of 4 respondents (10%) and junior/senior high educational background of 36 respondents (90%).

Results of Normality Test

Table 2. Results of normality test

		Breastmilk expression	Baby weight
n		40	40
Normal parameters[a, b]	Mean	9.40	14.63
	Std. deviation	2.048	31.366
Most extreme differences	Absolute	0.128	0.179
	Positive	0.128	0.179
	Negative	-0.098	-0.171
Kolmogorov-smirnov z		0.809	1.135
p-value		0.530	0.152

The results of the normality test with the One-Sample Kolmogorv-Smirnov Test show that the p-value >0.05. It means that the data came from a population with normal distribution.

Influence of the SPEOS Method on the Breastmilk Expression and the Increase of Baby Weight

Table 3. Analysis of the SPEOS method's influence on breastmilk expression and increase of baby weight

		Paired differences					t	df	p-value
					CI 95%				
		Mean	SD	SE	Lower	Upper			
Pair 1	Weight-Post weight	-16.500	19.727	6.238	-30.612	-2.388	-2.645	9	0.027
Pair 2	Pre milk_ - Post milk	-3.500	1.900	.601	-4.859	-2.141	-5.824	9	0.000

Based on the research results, analysis results of the SPEOS Method towards the breastmilk expression and the increase of baby weight results in the p-values of 0.000 and 0.027; thus it might be concluded that there was an influence of the SPEOS Method towards the breastmilk expression and the increase of baby weight.

Influence of the Marmet Technique on the Breastmilk Expression and the Increase of Baby Weight

Table 4. Analysis of the Marmet technique's influence on breastmilk expression and increase of baby weight

		Paired differences					t	df	p-value
					CI 95%				
		Mean	SD	SE	Lower	Upper			
Pair 1	Weight-Post weight	-20.500	28.911	9.142	-41.182	.182	-2.242	9	0.052
Pair 2	Pre milk-Post milk	-4.400	2.119	0.670	-5.916	-2.884	-6.567	9	0.000

Based on the research results, analysis results of the Marmet Method towards the breastmilk expression and the increase of baby weight results in the p-values of 0.000 and 0.052. The p-value of the breastmilk expression was <0,05, thus it might be concluded that there is an influence of the Marmet Method towards the breastmilk expression. The significance value of the baby weight was >0.05, thus it might be concluded that there is no influence of the Marmet Method towards the increase of the baby weight.

Influence of the Combination of the SPEOS Method and the Marmet Technique on the Breastmilk Expression and the Increase of Baby Weight

Table 5. Analysis of the combination of the SPEOS method and the Marmet technique's influence on breastmilk expression and increase of baby weight

		Paired differences					t	df	p-value
					CI 95%				
		Mean	SD	SE	Lower	Upper			
Pair 1	Weight-Post weight	-33.000	30.478	9.638	-54.802	-11.198	-3.424	9	0.008
Pair 2	Pre milk - Post milk	-6.500	1.650	.522	-7.680	-5.320	-12.458	9	0.0000

Based on the research, the analysis results of the SPEOS Method and the Marmet Technique combination towards the breastmilk expression and the baby weight yield the significance values of **p 0,000 and 0,008. The significance value is **p<0,05, thus it may be concluded that there is an influence of the SPEOS Method and Marmet Method towards the breastmilk expression and the baby weight.

Multivariate Analysis

Effectivity analysis of the combination of the SPEOS method and the Marmet technique towards the breastmilk expression and the increase of baby weight uses the Manova test (multivariate Anova test). All of the p-values were 0.000 where the p-value was 0.000. Thus, there was a difference in the average significance of the SPEOS method, the Marmet technique, and the combination of the two.

Table 6. Simultaneous Analysis

Dependent variable	(i) method	(j) method	Mean difference (i-j)	Std. Error	Sig.	95% confidence interval	
						Lower bound	Upper bound
Baby weight	Speos	Marmet	-4.00	12.425	0.991	-40.43	32.43
		Combination	-16.50	12.425	0.627	-52.93	19.93
		Control	28.00	12.425	0.186	-8.43	64.43
	Marmet	SPEOS	4.00	12.425	0.991	-32.43	40.43
		Combination	-12.50	12.425	0.798	-48.93	23.93
		Control	32.00	12.425	0.104	-4.43	68.43
	Combination	SPEOS	16.50	12.425	0.627	-19.93	52.93
		Marmet	12.50	12.425	0.798	-23.93	48.93
		Control	44.50*	12.425	0.011	8.07	80.93
	Control	SPEOS	-28.00	12.425	0.186	-64.43	8.43
		Marmet	-32.00	12.425	0.104	-68.43	4.43
		Combination	-44.50*	12.425	0.011	-80.93	-8.07
Post breastmilk	Speos	Marmet	1.00	0.633	0.486	-0.86	2.86
		Combination	-2.30*	0.633	0.010	-4.16	-0.44
		Control	1.70	0.633	0.084	-0.16	3.56
	Marmet	SPEOS	-1.00	0.633	0.486	-2.86	0.86
		Combination	-3.30*	0.633	0.000	-5.16	-1.44
		Control	0.70	0.633	0.749	-1.16	2.56
	Combination	SPEOS	2.30*	0.633	0.010	0.44	4.16
		Marmet	3.30*	0.633	0.000	1.44	5.16
		Control	4.00*	0.633	0.000	2.14	5.86
	Control	SPEOS	-1.70	0.633	0.084	-3.56	0.16
		Marmet	-0.70	0.633	0.749	-2.56	1.16
		Combination	-4.00*	0.633	0.000	-5.86	-2.14

DISCUSSION

Breastmilk Expression and Baby Weight Incrase on Postpartum Mothers treated with the SPEOS Method

Analysis results of the SPEOS Method show that there is an influence of breastmilk expression and the increase of baby weight. Based on the research results of Marlina, et al.[7] it is shown that there is an average increase in milk production and the average increase in baby weight. Endorphin is known as a substance with multiple benefits which may stimulate the endorphin hormone production and may stimulate the emergence of the prolactin and the oxytocin reflexes, which will increase breastmilk production and volume. This is the same as the research results of Hiyana[8] which shows that there is the influence of the SPEOS method towards breastmilk production on postpartum women. The SPEOS Method will stimulate the endorphin hormone which increases breastmilk production. Thus, it will increase breastmilk expression which will increase baby weight.

Breastmilk Expression and Baby Weight Incrase on Postpartum Mothers treated with the Marmet Method

Analysis results of the SPEOS Method show that there is a significant influence on breastmilk expression and the increase of baby weight. Yokohama's research explains that the breast massage combined with the emptying of the breast's contents will activate the prolactin hormone which produces breastmilk and the oxytocin hormone which functions to contract the breast, so that the milk may be expressed easily. The breast massage will only eject the breastmilk which is already contained in the mothers' breast sinus. Thus, it is highly effective to increase the milk expression by massage combined with the emptying of the breast's contents to stimulate the two hormones which function in the breastfeeding process.

Desmawati's research[9] explained that an early massage on the *areola mammae* is highly beneficial in aiding the breastmilk expression process. On a postpartum which is given 12 hours of intervention after birth, the breastmilk is expressed 18 hours after birth. The massage on the areola mammae stimulates the oxytocin hormone production which will ease the breastmilk expression process.

The Increase of Breastmilk Expression and Baby Weight on Postpartum Women Who are Treated with the Combination of the SPEOS Method and the Marmet Technique

The research results with the combination of the SPEOS method and the Marmet technique showed significant values. Thus, it may be concluded that this combination is effective in producing more breastmilk and in increasing the baby's weight.

The result of Widayanti's research[10] showed that the SPEOS functions to stimulate the production of the oxytocin hormone through the oxytocin massage. It gives comfort to the mother and develops her belief that the breastmilk will be expressed, that she will be able to give exclusive breastmilk with the endorphin and suggestive massages. In the study, it is shown that the SPEOS Method is an alternative method in treating the problem of breastmilk expression in the first days of the babies' lives. The combination of the endorphin massage, the oxytocin massage, and the suggestive/positive affirmation aims to help to breastfeed postpartum women to ease breastmilk production by stimulating the oxytocin hormone production. The breastfeeding mother is not only supported physically but they are helped to be able to adapt psychologically, where the oxytocin hormone is sensitive to the psychological condition of the mother. Thus, the mother may continue the exclusive breastfeeding program.

The Influence of SPEOS, Marmet, and the Combination of SPEOS and Marmet towards the Increase of Baby Weight and the Breastmilk Production

Analysis of effectivity on the combination of the SPEOS method and the Marmet technique on the breastmilk ejection and the baby weight increase both show significant values. The various researches which have been conducted in Indonesia to increase breastmilk production include the Oxytocin Massage, the Marmet Technique, Warm Compression, Rolling Massage (on the back), Breast Care[11] The SPEOS Method (Endorphin, Oxytocin, and Suggestive Stimulative Massages) is carried out by combining the endorphin massage, the oxytocin massage, and the suggestive/positive affirmation which aims to help to breastfeed postpartum women in easing the breastmilk production through the stimulation of the oxytocin hormone. The breastfeeding mother is not only supported physically but they are helped to be able to adapt psychologically, where the oxytocin hormone is sensitive to the psychological condition of the mother. Thus, the mother may continue the exclusive breastfeeding program[10].

This shows that there is an accordance between the theory that the combination of the endorphin massage, the oxytocin massage, and the suggestive actions through massages may help the mother to be relaxed. It stimulates the brain to produce endorphin, prolactin, and oxytocin hormones. Thus, the breastmilk will be produced well. It gives comfort to postpartum women and eradicates the blockages. Thus, the obstacles in breastfeeding in the first week may be eliminated. If on the first week the breastmilk production is already successful, it will be easier to continue the next weeks, thus the exclusive breastfeeding program will be achieved.

Based on the research results of Ningrum, et al.[12] the Marmet technique stimulates the reflex in breastmilk expression (let down reflect), which stimulates the reflex in breastmilk production. The research results are according to the theory, which is also supported by the research results of Widuri[13] who proved that the Marmet technique influences breastmilk production in postpartum mothers. If this Marmet technique is applied in postpartum mothers, the problems in breastfeeding in the first days such as failure to breastfeed or that the milk cannot be expressed will be resolved. It will prevent the mothers from giving formulated baby milk to the babies. The percentage breastfeeding scope in the first hour of birth will be reached, and even go as far as succeeding in undergoing the exclusive breastfeeding program.

Based on the research results, the SPEOS Method and the Marmet technique are effective in increasing breastmilk production and increasing the baby weight with a significant average value of breastmilk expression. The Marmet technique is carried out by squeezing the milk out and by massaging the breast, thus the reflex of the breastmilk expression may be optimum. Some say that this technique is the fast way to increase breastmilk production, which is the second most effective after the stimulus from the baby. Principally, the technique in squeezing out the breastmilk aims to empty the milk from the sinus lactiferous which is positioned under the areola. It is hoped that the emptying of the breastmilk, will stimulate the production of the prolactin hormone. This prolactin hormonal production will stimulate the mammary alveoli to produce breastmilk. The more breastmilk expressed or emptied from the breast; the more milk will be produced. Thus, the combination of the SPEOS method will increase breastmilk production to help postpartum mothers produce breastmilk and ease the breastfeeding process.

CONCLUSION

The combination of the SPEOS Method and the Marmet technique is highly effective in expressing breastmilk and in increasing the baby weight. The SPEOS Method stimulates the production of the prolactin hormone, which will stimulate breastmilk production. Meanwhile, the Marmet Technique is carried out by

squeezing out the breastmilk and my massaging the breast, which may optimize the reflex in expressing breastmilk.

Recommendation

The results of this research are hoped to be used in increasing the service quality of postpartum women by paying attention to the breastmilk production which will impact the breastfeeding process, for example through socialization programs on the combination of the SPEOS Method and the Marmet technique during pregnancy and also coaching on those methods. In the next research, the observation should be carried out until one week postpartum to know the effectivity of these methods towards the increase of baby weight.

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