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Appropriate Breastfeeding Techniques Reduce the Incidence of Breast engorgement in Postpartum Mothers

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Abstract. Breastfeeding is a maternal task that is often stressful for postpartum mothers. Many postpartum mothers at the beginning of breastfeeding experience difficulties in breastfeeding due to a lack of knowledge about breastfeeding techniques, resulting in breast problems. Proper breastfeeding technique will prevent the mother from breast nipple blisters, the mother feels comfortable while breastfeeding, breastfeeding is adequate, and there is no breast engorgement. This study aims to determine the relationship between breastfeeding techniques and the incidence of breast engorgement in postpartum mothers at Manyaran Community Health Center, Semarang City. This study used a descriptive correlation design with a cross-sectional approach. A total of 82 postpartum mothers were sampled through consecutive sampling techniques. The results showed that postpartum mothers with proper breastfeeding techniques were 65% and those who did not experience breast engorgement were 54.9%. Spearman Rank correlation test showed a significant relationship between breastfeeding techniques and the incidence of breast engorgements in postpartum mothers (ρ value of 0.000 <0.05) with a correlation coefficient of -0.0693. This means that there is a strong relationship between breastfeeding technique and the incidence of breast engorgement in postpartum mothers at Puskesmas Manyaran Semarang and has a negative direction. This means that the better the breastfeeding technique of postpartum mothers, the lower the incidence of breast engorgement.

Keywords: Breastfeeding Technique, Breast Engorgement, Postpartum

INTRODUCTION

Postpartum is the period after the mother gives birth which requires adaptation or readjustment after delivery, be it changes in physiological, psychological, social, cultural, and spiritual [1]. The process of physiological adaptation such as breastfeeding requires a learning process. In the early stages of breastfeeding, postpartum mothers have some difficulties in breastfeeding such as errors in breastfeeding techniques and positioning the baby, causing nipple blisters. Nipple blisters will cause pain during breastfeeding, making mothers traumatized, afraid, and lazy to breastfeed. This condition will cause breast engorgement/swelling in the breast [2], [3].

Mothers who experience breast engorgement will stop providing exclusive breastfeeding because of the pain felt in their breasts. Other impacts due to the occurrence of breast engorgement, mastitis, and failure to breastfeed or stop providing exclusive breastfeeding to infants are slow growth, susceptibility to disease, decreased intelligence levels, and even serious

malnutrition can cause death [4]. The impact of breast engorgement on mothers is that the breasts will feel painful, look firm, and feel full [5].

Data from the United Nations Children's Fund (UNICEF) shows that 54% of mothers in Southeast Asia do not breastfeed or stop exclusively breastfeeding their babies, while in Indonesia 49.3% of mothers do not exclusively breastfeed their babies [6]. When viewed on a provincial scale, the percentage of mothers who do not exclusively breastfeed their babies from 2021 to 2023 has decreased from 21.07% to 19.8. Meanwhile, in Semarang City, 69.31% of mothers failed to breastfeed or did not exclusively breastfeed their babies less than six months old [7].

Breast engorgement occurs due to the narrowing of the lactiferous ducts so that the milk produced in the alveolus and should be released to be given to the baby will be retained [8], [9]. When there is a milk dam, the mother will feel her breasts full, tense, hard, and painful [10]. Breast pain that is felt can come from chafed nipples with signs such as cracks, sores, and too dry [11]. This is due to incorrect or ineffective breastfeeding techniques so that mothers are reluctant to breastfeed and the baby will find it difficult to attach to the mother's breast. The cause of most pain problems in nipple blisters is due to inaccuracies in breastfeeding techniques [12].

Prevention and treatment of postpartum mothers with breast engorgement is to pay more attention and improve techniques in breastfeeding their babies. Breastfeeding technique is how a mother positions and makes the correct attachment in giving breast milk to her baby [13]. Poor baby attachment during breastfeeding is something that can cause mothers to be reluctant to breastfeed and less milk is given to the baby [14]. When mothers are reluctant to breastfeed, breast milk begins to accumulate in the alveoli so that the breasts become swollen, painful, warm, and hard [10]. Based on the background description above, the researcher is interested in knowing whether there is a relationship between breastfeeding techniques and the incidence of breast engorgement in postpartum mothers.

METHODS

This study was conducted at Puskesmas Manyaran Semarang, using a descriptive correlation design with a cross-sectional design approach. The study population was postpartum mothers at Puskesmas Manyaran Semarang. The number of research samples was 82 people selected by consecutive sampling. The research instrument was a Latch-On observation sheet to measure the ability of breastfeeding techniques of postpartum mothers and a Six Point Engorgement Scale (SPES) observation sheet to measure the breast milk dam of postpartum mothers. Data were analyzed univariately to see the frequency distribution of the characteristics of respondents and each research variable. Spearman Rank test was used in bivariate analysis to analyze the relationship between breastfeeding technique and the incidence of breast milk dam in postpartum mothers at Puskesmas Manyaran Semarang.

RESULTS AND DISCUSSION

1.1 Demographic Characteristics of Respondents

Table 1. Distribution of Maternal Age, Maternal Education, Maternal Occupation, Maternal Parity, Infant Age, Infant Gender, Infant Length, Infant Birth Weight.

Variable	Frequency (n)	Percentage (%)
Age (mother)		
20-35	78	95,2
>35	4	4,8

Education		
Junior High School	11	13,4
Senior High School	29	35,4
College	42	51,2
Occupation		

Variable	Frequency (n)	Percentage (%)
Pharmacist	1	1,2
Laborer	9	11,0
Pharmacy	2	2,4
Teacher	2	2,4
Housewife	46	56,1
Notary	1	1,2
Civil Servant	3	3,7
Private Employed	14	17,1
Self-employed	4	4,9
Parity		
Primipara	26	31,7
Multipara	56	68,3

	Min	Max	Mean
Age (mother)	20	44	29,21
Parity	1	2	2

Age (baby)		
Early Neonatal (day 0-7)	60	73,2
Late Neonatal (day 8-28)	22	26,8
Gender		
Male	43	52,4
Female	39	47,6
Birth Weight		
Low Birth Weight (<2500 grams)	2	2,4

Fair Birth Weight (2500-3500) grams)	66		80,5
Large Birth Weight (>3500 grams)	14		17,1
	Min	**Max**	**Mean**
Age (baby)	3	14	6,07
Body Weight	2350	2880	3036

Based on the results of the study, it is known that the mean age of respondents is 29.21 years with the youngest age of 20 years, the oldest age being 44 years, and the most is the age of 30 years, namely 11 respondents (13.4%), and respondents aged 20-35 years are 78 (95.2%) while those who have age> 35 years are 4 respondents (4.8%). Mothers over 35 years of age can still conceive because ovarian function remains active until near menopause, although the quality and number of eggs tend to decrease with age [15]. Breast engorgement can occur at the age of more than 35 years because the elasticity of breast tissue decreases so milk flow is not as efficient as 20-35 years of age [10]. In addition, the frequency of breastfeeding is not optimal because the mother feels insecure about her physical condition, causing breast milk to collect in the breast alveolus. If support is provided, confidence increases, breastfeeding frequency becomes more optimal, and breastfeeding techniques are appropriate, the incidence of breast engorgement can be avoided [8].

The results of research on the characteristics of respondents based on education level show that most respondents have a college education, namely 42 respondents (51.2%) who are included in the category of college-educated respondents, as many as 29 respondents (35.4%) have a high school education, which means they have received basic level education, and 11 respondents (13.4%) have a junior high school education. Mothers with tertiary education have good attachment and can position their babies comfortably. Higher education can form a good mindset so that it is easy to receive and obtain information [16]. A person's higher level of education will affect the amount of knowledge they have [17]. Lack of information about proper breastfeeding techniques can be influenced by formal and informal education so that with high education, mothers can receive information about proper breastfeeding techniques [18].

The results of research on characteristics based on the work of postpartum mothers showed that most of them did not work or were housewives, namely 46 respondents (56.1%), this was because the mother was still in the recovery and postpartum period. Mothers who do not work have more time to take care of and breastfeed their babies so mothers will know more about proper breastfeeding techniques [19], [20]

The results of the study on the characteristics of respondents based on parity showed that most of them had more than one child (multipara) as many as 56 respondents (68.3%) and most were Para-2 as many as 34 respondents (41.5%). The breastfeeding experience gained by a mother is influenced by parity. Previous breastfeeding failures can support and become learning in the present so that mothers can get better at breastfeeding their babies [21].

The results of research on the characteristics of infants based on age, most infants are in early neonatal age as many as 60 infants (73.2%) and as many as 22 infants (26.8%) are in late neonatal age. The age of the babies who were respondents in this study was in the neonatal period (0-28 days) or the early life of the baby. This age is the age when babies need a lot of breast milk because of the rapid growth process. Improper breastfeeding techniques in newborns can lead to a lack of emptying of the breasts, triggering the occurrence of breast engorgement. Younger infants tend not to have optimal ability so mothers need to ensure a good attachment [22].

Most of the infants in this study were male, 43 infants (52.4%). Non-optimal breastfeeding techniques in male infants are at greater risk of causing milk dams as they tend to suckle more

frequently and take longer. Male infants often have slightly higher breastfeeding needs as their average birth weight tends to be greater compared to the birth weight of female infants.

Most of the babies had normal birth weight (2500-500 grams) with 80 babies (97.6%) and low birth weight (1500-2499 grams) with 2 babies (2.4%). Infants with low birth weight are more at risk of ineffective breast emptying. On the other hand, normal birth weight infants tend to have a better ability to suckle, resulting in a lower risk of breast milk obstruction. Birth weight is an important indicator of a baby's ability to breastfeed. Infants with low birth weight often have weak suckling ability because their oral muscles are not fully developed [10].

1.2 Breastfeeding Technique in Postpartum Mother

Table 2. Distribution of Breastfeeding Techniques of Postpartum Mothers at Manyaran Semarang Health Center (n=82) Year 2024

Variable	Score						Total	
	0		1		2			
	f	%	f	%	f	%	f	%
Latch	14	17,1	22	26,8	46	56,1	82	100
Audible Swallowing	5	6,1	29	35,4	48	58,5	82	100
Type of Nipple	1	1,2	12	14,6	69	84,1	82	100
Comfort	8	9.8	43	53,4	31	37,8	82	100
Hold	1	1,2	24	29,3	57	69,5	82	100

Variable	Frequency (n)	Percentage (%)
Inappropriate Breastfeeding Technique	3	3,7
Partially Inappropriate Breastfeeding Technique	25	30,5
Appropriate Breastfeeding Technique	54	65,9
Total	82	100

The results of the table show that in the latch indicator, most mothers are at score 2, namely 46 respondents (56.1%) which means that most mothers who breastfeed have good attachment and strong and rhythmic suction. The audible indicator most mothers are at score 2, namely 48 respondents (58.5%) which means that there is a swallowing sound that is frequent and regular

when the baby suckles. The type of nipple indicator is mostly at score 2, namely 69 respondents (84.1%), which means that most mothers have a prominent type of nipple. The comfort indicator of most mothers is at score 1, namely 43 respondents (53.4%), which means that mothers experience nipple pain and slight redness. The hold indicator of most mothers is at score 2, namely 57 respondents (69.5%), which means that when mothers breastfeed their babies, they do not need help. Of the 5 indicators, the minimum score obtained was 2, and the maximum score was 10 with a mean of 7.70. The categorization of breastfeeding techniques is 3, based on the results of the table it is known that most mothers do the appropriate breastfeeding technique, namely 54 mothers (65.9%), as many as 25 mothers (30.5%) do partially inappropriate breastfeeding techniques, and 3 mothers (3.7%) do inappropriate breastfeeding techniques.

The results showed that most respondents with proper breastfeeding techniques were 54 respondents (65.9%). The appropriate breastfeeding technique is the way a mother gives breast milk to her baby by paying attention to the attachment, the position of the mother and baby, and the baby's suction to achieve success in proper breastfeeding techniques, knowledge is needed. The breastfeeding technique is the position of the mother and baby, the baby's attachment to the breast, and the baby's suction during feeding which is very important to achieve the effectiveness of breastfeeding so that the baby can get enough energy and adequate nutrition. In addition, breastfeeding with the right technique has benefits for both the mother and the baby, protecting against acute and chronic diseases [23].

1.3 Breast Engorgement in Postpartum Mother

Table 3. Distribution of Breast engorgement among Postpartum Mothers at Manyaran Semarang Health Center (n=82) Year 2024

Variable	Frequency (n)	Percentage (%)
Mild Swelling	62	75,6
Moderate Swelling	17	20,7
Severe Swelling	3	3,7
Total	82	100

The results of the table shows that most of the respondents' breasts are on scale 1, which is normal or there is no breast milk dam and no sign of swelling as many as 45 respondents (54.9%), as many as 18 respondents (22.0%) are swollen scale 2, as many as 10 respondents (12.2%) are swollen scale 4, as many as 6 respondents (7.3%) are swollen scale 3, and as many as 3 respondents (3.7%) are swollen scale 5. The results of categorizing the swollen breast condition of postpartum mothers are that most of them experience mild swelling in as many as 62 mothers (75.6%), moderate swelling conditions in as many as 17 mothers (20.7%), and severe swelling conditions as many as 3 respondents (3.7%).

The condition of the respondent's breasts that experience breast engorgement is that the mother says that the breasts feel full, feel hard, look firm and tense, the nipples are flat due to breast swelling, pain when breastfeeding or not breastfeeding which is caused by not releasing milk after it is produced so that the volume of milk in the breast exceeds the capacity of the alveoli and if it is not overcome, breast engorgement will occur. Day 3 after delivery is the onset of breast milk dam. Initially, milk will be produced so that the breasts look full and there is no effort to remove it so that the breasts will be enlarged, swollen, flat nipples, and painful. In addition, edema will occur so that the breasts look very shiny [24].

1.4 Breast engorgement in Postpartum Mother

Table 4. The Relationship between Breastfeeding Techniques and the Incidence of Breast Engorgement in Postpartum Mothers at Puskesmas Manyaran Semarang (n=82) Year 2024

Breastfeeding Technique	Breast Milk Dam												*p-value*	r
	Mild Swelling						Moderate Swelling				Severe Swelling			
	Scale 1		Scale 2		Scale 3		Scale 4		Scale 5		Scale 6			
	f	%	f	%	f	%	f	%	f	%	f	%		
Inappropriate Breastfeeding Technique	0	0,0	0	0,0	0	0,0	1	3, 3	2	6, 7	0	0,0		
Partially Inappropriate Breastfeeding Technique	0	0,0	10	0, 0	6	4, 0	8	2, 0	1	4,0	0	0,0	0,000	-0,693
Appropriate Breastfeeding Technique	45	3, 3	8	4, 8	0	0,0	1	1,9	0	0,0	0	0,0		
Total	45	4, 9	18	2, 0	6	7,3	10	2, 2	3	3,7	0	0,0		

Sperman Rank correlation test results obtained an r-value of -0.693. This means that there is a strong relationship between breastfeeding techniques and the incidence of breast engorgement in postpartum mothers at Manyaran Semarang Health Center and has a negative direction. This means that the better the breastfeeding technique of postpartum mothers, the smaller the incidence of breast milk dam. The statistical test results obtained a ρ value of 0.000 <0.05, which means that there is a significant relationship between breastfeeding techniques and the incidence of breast engorgement in postpartum women at Manyaran Semarang Health Center.

Respondents with proper breastfeeding techniques with mild swelling were 63.4% and respondents with proper breastfeeding techniques with no milk dams or scale 1 swelling were 54.9%. It can be explained that the more appropriate the breastfeeding position, the baby's attachment, and the baby's suction in the breastfeeding technique, the more it will affect the occurrence of breast engorgement. Breast milk is produced when the baby starts to suckle on the mother which causes stimulation of the nipple. The anterior pituitary will secrete prolactin to produce milk in the breast alveoli and the posterior pituitary will secrete oxytocin so that the milk in the breast alveoli can gush out. Proper breastfeeding techniques can lead to effective emptying of breast milk so that milk can be produced again, but when the mother's breastfeeding technique is not appropriate, the milk that should be consumed by the baby will only collect in the breast, resulting in a milk dam [25].

One of the factors that influence breast milk production is breastfeeding technique. If a milk dam occurs due to inaccurate breastfeeding technique, the breasts will be painful and the mother will be reluctant to breastfeed. As a result, the baby will not be able to suckle adequately and this will affect subsequent milk production [26].

CONCLUSIONS

The characteristics of the youngest postpartum mother/respondent were 20 years old, the oldest was 44 years old, and the average age was 29 years old. Most of the mothers were multiparous and most of them were in para 2, namely 34 respondents (41.5%). The education level of most postpartum mothers was college (51.2%), and most of the mothers' occupations were housewives (56.1%). Breastfeeding techniques of postpartum mothers at Puskesmas Manyaran Semarang City were mostly appropriate (65.9%). Most mothers' breast condition did not experience breast engorgement (54.9%) with mild swelling category (75.6%). There is a relationship between breastfeeding technique and the incidence of breast milk dam in postpartum mothers at Puskesmas Manyaran Semarang City in 2024 (ρ value of 0.000 <0.05) with a correlation coefficient of -0.0693. This means that there is a strong relationship between breastfeeding technique and the incidence of breast milk dam in postpartum mothers at Puskesmas Manyaran Semarang and has a negative direction. This means that the better the breastfeeding technique of postpartum mothers, the lower the incidence of breast engorgement.

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