

# **Relationship Between Maternal Anxiety Level and Ejection of Breast Milk in the First 24 Hours of Postpartum Period**

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## **ABSTRACT**

Breast milk is essential food for a baby's health. Many factors influence the success of breastfeeding, one of which is maternal anxiety. The infant mortality rate in Tegal is the highest in Central Java. The problem of breastfeeding supports the high rate of infant mortality. This study aims to determine the relationship between postpartum primiparous mothers' anxiety level and breast milk ejection in the first 24 hours at Harapan Anda Islamic General Hospital in Tegal. This cross-sectional analytic study was followed by 65 respondents who met the inclusion and exclusion criteria. The sampling technique used was simple random sampling. Anxiety data was measured using the Hamilton Anxiety Rating Scale (HARS). The bivariate analysis used the chi-square test to determine the relationship between anxiety level and breast milk ejection in the first 24 hours. There were 43 respondents who were unable to eject breast milk in the first 24 hours (66.2%), while respondents who experienced anxiety and were unable to eject breast milk in the first 24 hours were 41 people (95.3%). The results of statistical tests using the chi-square method showed significant difference in breastfeeding ejection success in the two groups ( $p < 0.05$ ). It indicated that there was a relationship between anxiety in postpartum primiparous mothers and breast milk ejection in the first 24 hours.

**Keywords:** *anxiety, breast milk, breastfeeding, postpartum*

## **1. INTRODUCTION**

In developing countries, there are 10 million infant mortality cases and 60% of which can be suppressed by breastfeeding. Breastmilk is proven to improve the health status of babies. The United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) recommend that babies exclusively breastfed for at least 6 months. Giving solid food begins after the baby is 6 months old, and breastfeeding is continued until the baby is 2 years old. Breast milk has been shown to improve the health status of babies. It is done to reduce infant morbidity and mortality (1). Breast milk is the ideal food for neonates. It provides age-specific nutrients and contains immunological factors and antibacterial substances. Breast milk also contains factors which act as biological signals to promote cell growth and differentiation (2).

Early Initiation of Breastfeeding, called IMD, also has a positive effect, which can reduce the risk of infant death. As much as 21% of infant mortality can be reduced by IMD (3). IMD can also minimize the prevalence of postpartum haemorrhage by stimulating the back of the hypophysis gland to produce oxytocin which triggers uterine muscle contraction to reduce bleeding (4).

Several factors affect milk production, namely mother's diet, peace of mind and soul, the influence of childbirth and delivery clinics, use of contraceptives containing estrogen

and progesterone, and breast care (5–7). Mothers who are restless, lack self-confidence, feel depressed and have various forms of emotional tension will experience difficulty in breastfeeding (8). One of the psychological factors that influences is anxiety. Maternal psychological preparation is critical to the success of breastfeeding. Mothers who do not have the confidence to produce breast milk generally have less milk production. Stress, particular concerns, and unhappiness of the mother during the breastfeeding period play a significant role in the success of breastfeeding (9). The role of the family in increasing maternal self-confidence is crucial (5).

Psychosocial stress is one of the many factors that influences breastfeeding mothers. Primiparous mothers are prone to various psychosocial problems as they do not know how to do simple things (7). Mothers who find their babies born with special needs such as premature will make them feel difficult and anxious while breastfeeding (5,10). Lack of support from the family, community, and health workers can cause anxiety for breastfeeding mothers (5). The age factor also plays a role in the emergence of anxiety. Some people argue that young people experience anxiety more often than older ones, while some argue the opposite (6, 11).

Discomfort and pain in the breasts are often complained by nursing mothers, especially in the early part of the puerperium. Primiparous mothers do not have breastfeeding

experience, so they frequently experience swelling of the breasts, sore nipples, blocked ducts, mastitis, breast abscesses and nipple anatomical abnormalities. This condition causes the baby to be lazy to breastfeed and further increases anxiety in nursing mothers (7).

Based on the above background, it is interesting to examine whether there is a relationship between post partum primiparous mothers' anxiety level and breast milk output at the early initiation of breast feeding. If the anxiety of primiparous mothers after childbirth affects the output of breast milk, it is necessary to provide psychological education and support to breastfeeding mothers, especially primiparous mothers who have not experienced breastfeeding to their babies.

**2. MATERIALS AND METHODS**

This study used a cross-sectional analytic study method. The sample was calculated using the analytical sample size formula for correlation (Dahlan, 2010). The minimum sample size was 31. The sample was selected with the following inclusion criteria: postpartum primiparous mothers aged 20-30 years old, underwent early breastfeeding, had no psychiatric disorder and agreed to participate in the study. While the exclusion criteria were infants who died, babies with disabilities, and mastitis. The research subjects who participated in this study were 65 primiparous mothers who gave birth in the Harapan Anda Tegal Islamic General Hospital who met the inclusion and exclusion criteria.

In this study, the independent variable was anxiety and the dependent variable was breast milk ejection. The anxiety was assessed using the Hamilton Anxiety Rating Scale (HARS) questionnaire. The questionnaire was filled out at the time of the Early Breastfeeding Initiation or was already in a condition that allowed an interview. The HARS questionnaire is a measurement of anxiety based on the emergence of 14 individual anxiety symptoms. According to the HARS scale, there are 14 symptoms that appear in individuals who experience anxiety. There are 14 items; each item observed is given 5 levels of score ranging from 0 (zero present) to 4 (severe). The anxiety assessment was included in two categories, namely no anxiety (score <14) and Anxiety (score > 14). The breast milk ejection definition is the successful release of breast milk in the first 24 hours of the post-partum period.

Data of this research was analyzed using univariate analysis and bivariate analysis. Univariate analysis was carried out to determine research subjects' characteristics (level of education, occupation, and frequency of ante-natal care). Bivariate analysis is used to determine the relationship between the post partum primiparous mothers' anxiety level and breast milk ejection using the Chi-Square Test. The data analysis process used the SPSS (Statistical Product and Service Solution) program.

**3. RESULTS AND DISCUSSION**

The research results showed that most of the respondents had implemented ANC well, namely four visits or more (95.4%). This study showed that 47 respondents (72.3%) did not work and 18 respondents (27.7%) worked. Based on the level of education, most respondents (58.46) had a high education level.

**Table 1.** Characteristics of Respondents

No	Characteristic	%
1	ANC <4x	4,6
2	ANC ≥4x	95,4
3	Working	27,7
4	Not Working	72,3
5	Elementary High School	41,15
6	University	58,46

**Table 2.** Statistic Analysis

		Breast Milk		Total	P
		Ejected	Not Ejected		
Anxiety Level	No	17	2	19	0,000
	Anxiety	77,30%	4,70%	29,20%	
	Anxiety	5	41	46	
		22,70%	95,30%	70,80%	

Based on the results of the Chi-Square Test (Table 2), it showed that there was a significant relationship between postpartum primiparous maternal anxiety and breastfeeding ejection within 24 hours at the Harapan Anda Tegal Islamic General Hospital. The results showed that 95.3% of respondents who experienced anxiety were unable to eject breast milk. It is inline with previous research which concluded that breast milk's ejection was strongly influenced by psychological factors (8,9,12).

Two reflexes mothers that are very important in the breastfeeding process are the prolactin and the let-down reflex, which occur due to the stimulation of the nipple by the baby's suction (13). The baby's suction on the mother's nipple can stimulate sensory nerve endings that function as mechanical receptors. Stimulation by the baby will be continued to the hypothalamus through the spinal cord and mesencephalon and to the anterior pituitary, so this gland secretes the prolactin hormone. Prolactin will stimulate the alveoli cells which function to produce milk. Stimulation of the nipple is also transmitted to the posterior pituitary which functions to secrete the oxytocin hormone. Oxytocin functions to stimulate smooth muscle contraction in the alveolar and lactiferous duct walls, so that milk can be pumped out and into the baby's mouth (13–15).

When there is stress from breastfeeding mothers, there will be blockage of the let-down reflex. The blockage is caused by adrenaline (epinephrine) release causing

vasoconstriction of the alveoli blood vessels so that oxytocin is inhibited from reaching the myo-epinephrine organ (15). Postpartum estrogen and progesterone hormones will be decreased significantly, this can lead to a depressive state. The thyroid hormone will also decrease which can lead to depression. An increase in postpartum prolactin hormone will result in decreased dopamine levels can be associated with depression symptoms, anxiety and obsessive thoughts (15–17).

Psychosocial stressors that occur in nursing mothers, causes let-down reflex blockage. Inhibition of this reflex is induced by adrenaline release followed by vasoconstriction of the capillary-alveolar in the breast glands. As a result, oxytocin is delayed in arriving at the myoepithelium (7,15). An incomplete let-down reflex will result in a buildup of milk in the alveoli characterized by enlarged breasts. Enlarged breasts can result in abscesses, failed breastfeeding and pain. The pain will also cause stress to the mother (6,11). This pattern will be repeating itself because most mothers will be anxious about the low production of their milk so that the cycle above will be repeated and inhibit breast milk production. Anxiety generally arises from the lack of information received, understanding, and the mother's excessive worry about her condition (15,16).

Many studies have shown that depression during pregnancy and the puerperium is associated with a shorter breastfeeding duration but not with the desire to breastfeed or early initiation of breastfeeding. The appearance of postpartum depression predicts breastfeeding discontinuation in several studies. This failure to breastfeed can also increase symptoms of depression during postpartum (18). The trial of giving relaxation techniques given to nursing mothers has a positive effect on the mother's psychological state, breast milk intake, cortisol levels, and the behavior and growth of the baby. In conditions of excessive stress, the cortisol hormone will inhibit the work of the prolactin and oxytocin hormones which are responsible for producing breast milk, so that if the milk supply decreases, the baby will suffer from malnutrition and will affect the behavior and immunity of baby (3, 8). Research on 81 postpartum mothers showed that postpartum mothers' psychological condition influence IgA Secretory (sIgA) breast milk level. SIgA is a component of the immune system that functions to prevent bacterial and viral infections in infants (20).

In the postpartum period, mothers with high anxiety symptoms of anxiety (post-partum anxiety, PPA) have a not optimal infant nutrition risk. Mothers with PPA were less likely to breastfeed exclusively and more likely to stop breastfeeding early and use formula milk to meet the babies' nutrition. The condition of mothers with PPA will experience decreased self-confidence, increase breastfeeding difficulties, and negatively affect breastfeeding behavior and milk composition (2, 19). In the early stages of breastfeeding, supply and demand are sometimes not appropriate. For example, the demand for babies is already large, but mothers' supply is still low, so babies will often cry because they are hungry. If non-fluency in breastfeeding is not treated immediately, it will

result in more significant maternal anxiety. This condition can make the mother unable to breastfeed optimally, which if left untreated will continue to become the post partum blues (10).

#### **4. CONCLUSION**

Based on the results of research and statistical analysis, it can be concluded that there was a relationship between postpartum primiparous mothers and breast milk ejection. It is hoped that health workers could provide special education.

#### **AUTHORS' CONTRIBUTIONS**

All of the authors contributed to the research

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