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Factors Contributing to Breast Milk Production in Mothers with *Sectio Caesarean* Labor in Gorontalo City Indonesia

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Abstract:- Production of breast milk is influenced by several factors, i.e., oxytocin hormone, prolactin hormone, prolactin reflex, and let-down reflex. During the breastfeeding process, when the baby sucks the nipple, two reflexes occur simultaneously; prolactin reflex stimulating breast milk production, and let-down reflex stimulating milk ejection. This study intends to identify the factors contributing to breast milk production in mothers with *sectio caesarean* labor in Gorontalo city. It employed a descriptive-analytical design with the cross-sectioal approach and one-time variable measurement. The research was conducted by the help of three associates in three months, starting from September to November. Moreover, 30 mothers with *sectio caesarean* labor in Aloei Saboe Hospital and Sitti Khadidjah Hospital in Gorontalo city were selected as the research samples. The results indicate that the respondents' characteristics (i.e., age, parity, level of education and employment, and motivation) do not contribute significantly to breast milk production. Factors with significant contribution to breast milk production are pain, nutritional intake, and anxiety. The in-depth analysis result suggests that the anxiety factor contributes the most to the breast milk production, as shown by test statistical test in which the p-value is 0.0000; thus it can be generated that there is a significant relationship between mothers' anxiety and breast milk production.

Keywords:- *Physical Factors, Psychological Factors, Breast Milk Production.*

I. INTRODUCTION

In accordance with the Sustainable Development Goals (SDGs) 2030, breastfeeding is one of the first steps for human beings to obtain a healthy and prosperous life. Unfortunately, this is not among the concerns of many people in the world. In both developed and developing countries, including Indonesia, working mothers are not breastfeeding exclusively. Although almost 9 of 10 mothers in Indonesia have experienced breastfeeding, however, according to research by IDAI (Yohmi et al., 2015), only 49.8 percents of the mothers conducted exclusive breastfeeding for six months as recommended by WHO. The low percentage of exclusive breastfeeding can bring negative impact on the life quality of the nation's next generation and the national economy. Exclusive breastfeeding is known to contribute approximately 302 billions of US Dollars per year to the world's economic income. Moreover, it is also in accordance with Goal 1, 8, and 10 in SDGs, i.e., eradicating poverty, economic growth, and reducing inequality within and among countries.

A systematic review conducted in 33 countries indicates that the prevalence of early breastfeeding is lower in post-Sectio Casearea mothers compared to mothers with pervaginam labor. Previous studies have also discovered that 100 percents of post *sectio caesarean* mothers did not start breastfeeding right on the first day of labor. Overall, there are several factors that influence breast milk delivery, i.e., support of health workers, mother's condition (both physical and psychological), socio-cultural change, hospital governance, baby's health, mother's attitude, family environment, marketing regulation for breast milk replacement, and parity. In addition, one suggests that the first 24 hours after labor is the most crucial stage of breast milk delivery initiation, in which it determines the success of subsequent breastfeeding. If the mother did not initiate breastfeeding more than two days postpartum, the response of prolactin release would decrease significantly. This situation occurs in *sectio caesarean* labor.

A mother mortality rate poses a significant threat to the sustainability of a family, a region, or even a country; as the mother is often regarded as the heart of every household activity. Moreover, the mother mortality, particularly in postpartum situation, impacts most significantly to the baby, as the mother is the baby's main life source. A mother who passed away during post-natal bleeding could result in death to the baby. In many cases of baby mortality in Indonesia, most are affeccccted by the mother's condition, either because the mother has a particular disease, or the mother pass away. Therefore, it is undeniable that mothers with some specific diseases during pregnancy will almost always lead to the delivery of a baby with health problems that could aggravate and cause death to the baby.

The mother mortality rate in Gorontalo province is 253 percent or 52 mothers. The number increased in 2016, in which 61 mothers, or 301.7 percent passed away during the year. Moreover, 75 percent of them are mothers in the post-natal bleeding phase, leaving the babies with no breast milk intake at all; thus, the babies are more prone to an early death.

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There are crucial factors to take into account to reduce pain in post sectio caesaria mothers during breastfeeding, in order to stabilize the breast milk production. The factors are age, parity, education, the baby's sucking, liquid intake, post-operative pain, anxiety, and motivation. Further, the pregnancy age also contributes to breast milk production. A premature-born baby is usually very weak and thus is not capable of sucking the breast normally. Breast milk production and release are also influenced by the frequency of suckling time. However, the frequency of suckling between a normal-born and premature-born baby is quite different, thus resulting in lower breast milk production in the premature-born baby. Mother's age is also a contributing factor to the breast milk production, as a younger mother less than 35 years old may produce more milk compared to an older mother. Mothers with age of 19-23 years old are generally capable of producing more milk than mothers in their 30s. Parity also influences a mother's milk production, as a mother in second labor or more can produce more milk than during the first labor. Further, it is signified that multipara mothers produce more breast milk rather than primpara mothers on the fourth day after postpartum.

Production of breast milk is influenced by several factors, i.e., oxytocin hormone, prolactin hormone, prolactin reflex, and the let-down reflex. When the baby sucks the nipple, two reflexes occur simultaneously; prolactin reflex stimulating breast milk production, and let-down reflex stimulating milk ejection.

Based on previous studies, age and birth parity also correlate with breast milk production, as measured in the baby's breast milk intake. Lipsman et al. (1985) in ACC/SCN (1991) find out that 22 of 25 babies have sufficient breast milk intake when suckling to mothers of young age with appropriate nutrition. In mothers who give birth more than once, the breast milk production in the fourth-day postpartum is higher than first-timer mothers (Zuppa et al., 1989 in ACC/SCN, 1991). However, Butte et al. (1984) and Dewey et al. (1986, in ACC/SCN, 1991) assert that there is no statistical relationship between parity and breast milk intake in mothers with appropriate nutrition.

In mothers with *sectio caesarean* labor, the breast milk delivery can be conducted right after surgery, since the operation involves spinal or epidural anesthesia to keep the mother awake. The breastfeeding position is adjusted to the mother's condition, e.g., lying down, sitting, and football hold position; thus, *sectio caesarean* is not considered a hindrance for the mother to breastfeed. Considering that *sectio caesarean* labor is becoming more common in current daily life, the importance of early breastfeeding for the subsequent success of breastfeeding, and the significant role of health workers in supporting breastfeeding process within first days of labor, this study intends to investigate the factors contributing to breast milk production in mothers with *sectio caesarean* labor, i.e., age, education, parity, operative pain, liquid intake, anxiety, and motivation.

II. LITERATURE REVIEW

A. Breast Milk

Breast milk is milk released from a woman's breast as a result of interaction between progesterone, estrogen, prolactin, and oxytocin (Ricci, 2009). During pregnancy, the breast will develop in shape and function in preparing for breastfeeding stage. In the early phase of pregnancy, the breast duct grows bigger and develops lobes and alveoli. The change in shape structure results in a bigger, softer, and heavier breast (Ricci, 2009).

The secretion of prolactin hormone produced in pituitary gland increases during pregnancy, which helps stimulate breast milk ejection after giving birth. During pregnancy, the prolactin, estrogen, and progesterone hormones will trigger the synthesis and secretion of colostrum consisting of a considerable amount of carbohydrate and protein without fat content. The colostrum is only secreted during earlier stages after giving birth. When the estrogen and progesterone hormones decrease in amount, the prolactin hormone stimulates glandular cells to produce breast milk (Ricci, 2009).

The oxytocin hormone secretes breast milk from alveoli to the nipple. The breast milk flows when suckled by the baby. Baby's sucking stimulates the nipple and thus increases prolactin hormone. Therefore, prolactin and oxytocin hormones produce and release breast milk when stimulated by the baby's sucking. Nevertheless, the production of breast milk will stop for two or three days if there is no stimulus by baby's sucking (Ricci, 2009).

- *Breast Milk Composition*

Colostrum is the watery, yellowish breast milk that contains protein, sugar, fats, vitamins, minerals, and antibody produced by the breast since the fourth month of pregnancy up to three or four days after giving birth. Due to the high content of protein and the low content of sugar and fats, colostrum is digestible and provides valuable nutrients for the baby until replaced by transitional breast milk. When the transitional breast milk phase ends, the breast starts producing mature milk at the tenth-day postpartum (Pilliteri, 2010).

- *Benefits of Breastfeeding*

The process of breastfeeding is beneficial to the mother and baby; To the mother, breastfeeding helps delay new pregnancy, helps bond and development processes, protects maternal health, and costs less than artificial milk intake (PERINASIA, 2007). In addition, Pilleteri (2010) asserts that breastfeeding helps prevent the mother from breast cancer, fasten recovery process from post-natal bleeding (as the secretion of oxytocin by posterior pituitary gland helps the uterus involution process), reduces cost and is time efficient, and is a great opportunity for the mother to develop bonding symbiotic

with the baby. Moreover, breastfeeding provides complete and appropriate nutrition for the baby; the breast milk is easily and efficiently digestible, and helps protecting against infections (PERINASIA, 2007).

➢ *Factors Influencing Breast Milk Production*

- *Mother's Physical Condition*

✓ *Mother's Health*

A healthy physical condition helps enhance optimal breast milk production in both quantity and quality (Poedinato, 2002). Therefore, it is essential for the mother to maintain her health in the breastfeeding stage. Generally, breast milk production is not affected when the mother is sick; however, due to her concern for the baby, the mother usually stops breastfeeding for some period. This leads to no stimulus to the nipple and thus reduces or stops breast milk production (Suradi & Tobing, 2004).

✓ *Nutrition and Liquid Intake*

Mother's nutrition and liquid intake contribute to the quality of breast milk production (Pilleteri, 2003). During the breastfeeding stage, a mother needs a considerable amount of carbohydrate, protein, fat, vitamins, and mineral. A mother also needs additional daily calorie intake of ± 700 calories during the first six months of breastfeeding stage (Soetjiningsih, 2005). Further, adequate liquid intake of 8-12 glasses of water (2,000 - 3,000 ml) is crucial to maintain good breast milk production (Pilliteri, 2003).

✓ *Age and parity*

Younger mothers can produce more breast milk compared to older ones (Soetjiningsih, 2005). In line with Soetjiningsih, Biancuzzo (2003) states that younger mothers less than 35 years old produce more breast milk than older mothers. Breast milk production in mothers who give birth twice or more is higher in quantity compared to mothers in their first-time labor (Soetjiningsih, 2005).

✓ *Pain*

Postpartum mothers with *sectio caesarean* labor will experience discomfort and pain due to incision wound on the abdominal wall. This hinders the mother to breastfeed, as when the mother changes position, she will feel more pain that inhibits oxytocin production, thus affecting breast milk flow (Suradi & Tobing, 2004).

- *Mother's Psychological Factors*

✓ *Anxiety*

Compared to those with normal labor, mothers undergoing *sectio caesarean* labor will experience different problems. Aside from the post-natal bleeding, the mother will need to undergo a longer recovery process due to surgery. In a few days after *sectio caesarean* surgery, mothers will experience pain due to incision wound, obstructing them to nurture the baby or from their daily activities. Such a condition will develop the mother's anxiety on her and her own baby's health, thus making her feeling helpless (Nichol, 2005).

Over time, the anxiety will develop to stress and disturbs the mother's mind, leading to adrenaline release that triggers vasoconstriction of blood vessels in alveoli. This reaction will affect the let-down reflex, obstructing breast milk flow, and creating a dam of breast milk (Soetjiningsih, 2005).

✓ *Motivation*

The success of breastfeeding is affected by psychological preparation since the pregnancy stage. A mother with strong motivation to breastfeed will always try to breastfeed her baby under any situations, or even when facing problems when breastfeeding. The strong urge to breastfeed influences the let-down reflex, smoothing the breast milk flow.

➢ *Assessment of Breast Milk Production*

In assessing the production of breast milk, one can refer to several indicators, one of which is signs of breast milk sufficiency to the baby, i.e., not having a weight loss of more than ten percents in the first week. At the tenth day, the baby's weight will increase again up to the baby's initial weight on the first day. Subsequently, the baby's body weight will increase to 200-250 grams per week (Soetjiningsih, 2005).

Another indicator is the baby's frequency and color of feces. At the first and second day, the baby defecates once or twice per day with blackish feces. At the third and four day, the baby defecates twice per day with greenish or yellowish feces. Moreover, on the fifth and sixth day, the baby defecates yellowish feces with mushy texture in three or four times per day. During the first month, when the volume of breast milk increases, the baby will frequently defecate after breastfeeding (Poediono, 2002; Boancuzzo, 2003; Siregar, 2004; Nichol, 2005).

A newly-born baby with sufficient milk intake will excrete transparent or pale yellow urine in six to eight cloth diapers, or five to six single-use diapers. The baby usually shows satisfied or happy gesture during breastfeeding. The baby's appearance looks healthy with good turgor; the baby is quite active in motion and suckles in eight up to twelve times in 24 hours (Poediono, 2002; Boancuzzo, 2003; Siregar, 2004; Nichol, 2005).

Further, one can also observe the mother's breast condition. Indicators of good breast milk production are 1) soft breast after breastfeeding, 2) the mother feels something flowing from the breast during breastfeeding, 3) breast milk dripping from the unused breast, and 4) when the mother feels calm, relaxed, and always thirsty (Biancuzzo, 2003).

B. Concept of Sectio caesarean

Sectio caesarean is among the oldest procedures to give birth to a fetus by incision cut on the abdominal wall and uterus wall (Pilliteri, 2003; Syaifudin, 2006).

➢ *Indication of Sectio Caesarean*

There are several indications for *sectio caesarean*, including (1) cephalopervic disproportion, (2) uterus dysfunction, (3) soft tissue dystocia, (4) placenta previa, (5) papilloma or active genital herpes, (6) HIV-AIDS positive, (7) under special situation, e.g. hypertension during heavy pregnancy or lack of maternal pushing efforts, (8) failure of labor induction, (9) obstruction of birth canal by benign or malignant tumor, and (10) medical history of *sectio caesarean* by classical incision technique (Pilliteri, 2003; Saifudin, 2006).

Moreover, Saifudin (2006) and Pilliteri (2003) assert that indications for *sectio caesarean* to the baby are when the fetus is (1) big, (2) in fetal distress, (3) in transverse position, (4) in small weight, (5) in major disorder, e.g. hydrocephalus, and (6) double or twin pregnancy.

➢ *Postpartum Mothers with Sectio Caesarean Labor*

After *sectio caesarean* surgery, the mother enters different post-natal bleeding stage compared to those with normal labor, in which the mother will have to recover from delivery process and abdominal wall dissectio at the same time (Darmaatmaja, 2007). During the phase, the reproduction organs start recovering as before pregnant, or involution process. Additionally, during the stage, the mother enters the lactation phase, in which the mammary glands start producing breast milk.

Postpartum mothers with *sectio caesarean* delivery usually face problems in a few days after surgery. Right after the surgery, the mother will feel sleepy due to the anesthesia effect, hence makes the baby weak and more likely unwilling to suckle. When the anesthesia effect ends, the mother will start experiencing pain at the incision wound scar on the abdominal wall, making the mother unwilling to move (Soetjiningsih, 2005).

Sectio caesarean labor can affect psychologically to the mother, as the mother will develop a feeling of failure of giving a normal delivery. Moreover, the mother will feel anxious about the recovery process and that the medications she takes will have any side effects on the baby (Darmaatmaja & Meliasari, 2007). Most mothers undergoing cesarean surgery usually feel worried about not being able to provide exclusive breast milk for the baby. This is due to the widely accepted assumption that mother with cesarean surgery takes longer time to recover.

In fact, due to anesthesia after giving birth, the mother faces more difficulty in providing exclusive breastfeeding to the child. There are several ways for mothers with cesarean surgery to give exclusive breast milk:

- *Early Breastfeeding Initiation*

The mother is suggested to consult with the gynecologist to perform early breastfeeding initiation, as breastfeeding is a natural process in which the mother almost always able to breastfeed with ease. The mother with cesarean surgery can also perform the initiation only if the mother's physical condition is healthy enough. Mother with local anesthesia can perform the initiation, in which the baby does skin to skin contact with the mother and tries to suck the nipple by himself with the help of the health worker available to ease the process.

- *Proper Position Adjustment*

Mothers with *sectio caesarean* labor may face some difficulties in breastfeeding the baby, as the mother may not be able to sit in a good position. When experiencing such a condition, mother can consult with the lactation counselor. Alternatively, mother can use a pillow as base and adjust good positioning of the baby when breastfeeding to protect surgery wounds from unwanted contacts. Usually, in four days after surgery, mother can already adjust her position comfortably.

- *Frequent Breastfeeding*

A newborn baby will usually sleep a lot. Nonetheless, it is essential for the mother to try breastfeeding more frequently in order to stimulate breast milk production. Mother can ask for help from the nurse to wake the baby up to learn to breastfeed. It is important for the mother to develop resilient and content feeling since a caesarean surgery-delivered baby needs longer time to get used to breastfeeding.

- *Rooming-In*

It is beneficial for the mother to choose rooming-in method, in which the mother and the baby are in the same room. This helps the mother to monitor the baby closely and be prepared whenever the baby is hungry, as well as to develop stimulus to breastfeed. However, if the mother cannot opt of rooming-in method due to particular reasons, it is preferred for the mother to pump breast milk every 3-4 hours. The mother can ask for assistance by available health workers to feed the baby by using cup feeder. If possible, the mother should continue breastfeeding the baby.

- *Hypno-Breastfeeding Relaxation*

Hypno-breastfeeding is a hypnosis technique involving relaxation and suggestion technique to encourage positive vibes to the mother's subconscious mind in order to optimize breast milk production. One suggests that the mother's mental condition is crucial, as the mental condition contributes 82 percents to the mother's mindset, behavior, and decision-making regarding breast milk. For example, if breast milk does not come out within 1-2 day after labor, the mother will experience negative suggestions from people around that the mother will never be able to breastfeed. If the negative vibes continue, the mother will be stressed, thus affecting the flow of breast milk. Any stress will obstruct the production of the prolactin hormone, thus influencing the

breast milk production. Hypno-breastfeeding relaxation helps to ease the mother's psychological condition and to increase motivation and confidence to provide exclusive breastfeeding.

III. RESEARCH METHOD

Population in a research is the subjects (human beings, clients) meeting the set requirements (Nursalam, 2008). Sastroasmoro and Ismael (2011) state that population is divided into two categories, i.e., target population and accessible population. Target population is the expected population at the place in which the research is conducted; meanwhile, accessible population is groups of patients accessible by the researcher. The population of this study was postpartum mothers residing in Gorontalo city. Moreover, research sample was a group of individuals as a part of population accessible by the researcher, in which the researcher collected data and/or conducted observations or measurements for research purposes (Dharma, 2011).

The samples of research were determined by the following formula:

$$n = \frac{N}{1 + N\,(\alpha)}$$

$$n = \frac{45}{1 + 45\,(0{,}05)^2}$$

n = 30

Description:
n = sample size
N = Population size obtained from the average of postpartum inpatients with *sectio caesarean* per month in Aloei Saboe Hospital and Sitti Khadidjah Hospital.
d = calculated desired reliability value

The formula resulted in 30 patients as the research sample. Moreover, the research employed the probability sampling technique by the consecutive method. It is a method of sampling done by electing every individual who meets all the requirements until the desired amount of sample is fulfilled (Dharma, 2011).

Further, there are several inclusion criteria for this study:
- ✓ Postpartum mothers that undergo *sectio caesarean* labor without complication
- ✓ Mothers with an alive baby
- ✓ Babies that only consume breast milk for 17 days, this criterion is required to measure any weight changes for consuming breast milk.
- ✓ The exclusion criteria in this research are inverted nipple and congenital disorders in the baby.

This study was conducted in Gorontalo city for four weeks, starting from the first week to the fourth week of September 2017. The respondents' initial data were obtained in the research sites. The study employed research instruments, i.e., questionnaire and observation sheets developed by Enok Nurliawati, and baby weight scale.

The questionnaire consisted of four sectios, including the baby's characteristics, mother's physical and psychological conditions, and breast milk production. The observation sheet consisted of (1) breast palpation prior to breastfeeding, (2) breast palpation after breastfeeding, (3) sound of swallowing during breastfeeding, and (4) the baby's weight.

The data were processed by conducting the following techniques:
- ✓ Editing, to review the contents of questionnaire and observation form for complete, clear, relevant, and consistent answers (Hastono, 2007).
- ✓ Coding, to label any data with particular meanings, so as to make it easier for the researcher in using and grouping data.
- ✓ Data entry, to input the data into the statistical software program for analysis (Hastono, 2007).
- ✓ Data cleaning, to evaluate any data inputted and to find any errors during data entry process (Hastono, 2007).

IV. FINDINGS AND DISCUSSION

A. Research findings

➢ *Respondents' Characteristics*

- *Characteristics of Postpartum Mothers*

The patients' characteristics analyzed in this research comprise age, parity status, education, and job. The characteristics are categorical data analyzed by calculating the frequency distribution. Table 1 displays that most respondents are in 26-35 years old age group, with total of 16 respondents (55.17%). The highest parity status is multigravida, consisting of 16 respondents (55.2%). Moreover, most respondents are housewife, with total of 16 respondents (55.2%); and the higher education percentage is university level, with 14 respondents (48.3%).

Characteristic	N (n=29)	
	%	N
Age		
17-25	31,03	9
26-35	55,17	16
36-45	13,8	4
Education		
Junior High School	20,7	6
Senior High School	31	9
University	48,3	14
Job		
Housewife	55,2	16
Civil servant/non-permanent servant	37,9	11
Others	6,9	2
Parity		
Primigravida	44,8	13
Multigravida	55,2	16

Table 1:- Frequency distribution based on the respondents' characteristics

➢ *Univariate Analysis*

- *Post-operative pain*

The analysis result of pain factor in postpartum mothers is displayed in table 2, as follows:

Characteristic	N	%
Pain		
Mild pain	19	65.5
Moderate pain	10	34.5

Table 2:- Postpartum pain

The previous table indicates that 19 respondents (65.5%) experience mild pain at the 17th day after *sectio caesarean* labor, with the most scale is pain scale 3 with 17 respondents (58.6%). In the meantime, 10 respondents (34.5%) experience moderate pain.

- *Postpartum mothers' nutritional intake*

The analysis result of nutritional intake in postpartum mothers is presented in the following table:

Characteristic	N	%
Nutrition		
Sufficient nutrition	25	86.2
Lacking sufficient nutrition	4	13.8

Table 3:- Postpartum mothers' nutritional intake

The previous table reveals that 25 respondents (86.2%) consume sufficient nutrition in 17 days after *sectio caesarean* labor. In the meantime, 4 respondents (13.8%) are lacking sufficient nutrition.

- *Postpartum mothers' anxiety*

The analysis result of anxiety in postpartum mothers is illustrated in the following table:

Characteristics	N	%
Anxiety		
Not anxious	23	79.3
Anxious	6	20.7

Table 4:- Post-partum mothers' anxiety

The previous table indicates that when compared to the rest, 23 respondents (79.3%) are not anxious during the breastfeeding stage.

- *Postpartum mothers' motivation*

The analysis result of motivation in postpartum mothers is shown in table 5 as follows:

Characteristics	N	%
Motivation		
Good	25	86.2
Less	4	13.8

Table 5:- Postpartum mothers' motivation

The previous table signifies that among all respondents, 25 respondents (86.2%) have high motivation, while the rest have low motivation.

B. Discussion

The analysis result suggests that the mothers' characteristics (age, parity, level of education, job) do not contribute significantly to breast milk production. This is in line with Indriyani (2006), who finds out that there is no correlation between breast milk production and demographical characteristics, age, education, parity, and job. Desmawati (2008) also argues that age does not correlate with breast milk production in both control group and intervention group. Another study by Ogunlesi (2009) indicates that age and parity do not correlate with breastfeeding initiation.

This is supported by Koimbro (2006) that breast milk production is not affected in mothers returning to work at one year after giving birth. Further, as Chatterji and Frick (2005) suggest, mothers with 35 work hours per week do not influence their breastfeeding routine.

Based on the analysis result, the baby's birth weight and health status do not correlate with milk production. Baby with less birth weight (less than 2,500 grams) generally have problems in breastfeeding since the suction reflex is relatively weak. This causes less stimulation of oxytocin and prolactin to be produced; therefore, obstructing production of breast milk (Nichol, 2005 and Suradi and Tobing, 2004). In this study, the lowest weight is 2,200 grams, thus, still possible to directly suck on the mother's breast. With continuous training and support by high motivation from mothers to breastfeed their babies, the baby suction reflex will improve. This is in accordance

with the result of this study that good motivation contributes to breast milk production.

Babies are very susceptible to disease because immune substances have not developed and functioned optimally. Even when babies are sick, breast milk is irreplaceable since it is the baby's natural food. It is rarely found that a sick baby is medically not allowed to breastfeed. Therefore, there should be no problem with breast milk production, even if the baby is sick.

The results show that factors with significant correlation with breast milk production in mothers with caesarean sectio surgery are pain on the surgical wound. This is in compliance with Merten, Wyss, and Librich (2007) that mothers in African Sub-Sahara, Latin America, and Asia postpone early breastfeeding due to discomfort and the need for intensive treatments to the baby.

Pain can occur in the post-surgery wound, varying to a certain extent in individuals. Any pain experienced by the mother can obstruct oxytocin release, making breast milk production less optimal (Roesli, 2008). For this reason, mothers with *sectio caesarean* labor who are still experiencing pain can result in less optimal breast milk production. Liquid intake is a variable

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