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# Status of breast care during pregnancy with milk production and disease

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## Abstract.

**BACKGROUND:** Breast care is an important routine during pregnancy and breastfeeding. Its absence leads to inadequate milk production before and after childbirth.

**OBJECTIVE:** This study aimed to determine the status of breast care during pregnancy, which is related to milk production and disease after childbirth in the Tinggede Health Center, Sigi Regency, Central Sulawesi.

**METHODS:** The method used was an analytic survey with a cross-sectional approach and the samples were 82 breastfeeding mothers in the working area of the Tinggede Health Center. The sampling used a total population, and data were obtained by interview and observation. Furthermore, the analysis technique used Chi-Square.

**RESULTS:** The results showed there was a relationship between breast care during pregnancy with milk production ( $p = 0.001$ ), and breast care status with a disease ( $p = 0.012$ ). The common diseases suffered by breastfeeding mothers due to inadequate care are non-protruding nipples, infections, blocked milk ducts, mastitis, and lumps.

**CONCLUSIONS:** Breastfeeding mothers' failure to care for their breasts during pregnancy can lead to lack of milk production and diseases such as non-protruding nipples, infections, blocked milk ducts, mastitis, and lumps.

Keywords: Breast care, breast milk production, breast disease

## 1. Introduction

In Indonesia, exclusive breastfeeding is limited. According to the Basic Health Research in 2018, the coverage of breastfeeding was only 37.7% and in Central Sulawesi, it was 54.7%, in infants between 0–6 months old. The percentage was below the WHO's target, in which the coverage for infants, was at least 80% [1,2].

Based on data from the Tinggede Health Center, Sigi Regency, there was a decreased coverage of exclusive breastfeeding in 2018 and 2019 with a percentage of 43% and 42% respectively, while the expected benchmark was 80% [2].

Inadequate milk production, caused by the absence of proper breast care is the inhibiting factor of breastfeeding. Therefore, breast care is an important routine during pregnancy, and compromising it can result in

the following; delayed and insufficient milk production, failed nipple protrusion, lumps development, and infections [3].

According to established procedures, breast care during pregnancy can help to produce healthy milk. Furthermore, maintaining the breast's cleanliness, flexing, and strengthen the nipples can make it easier for babies to suckle and prevent inflammation [1,4]. The care is expected to facilitate healthy milk production for the baby [5,6]. Therefore, this study is aimed at analyzing the status of breast care concerning milk production and diseases.

## 2. Methods

The method used was an analytical survey with a cross-sectional approach. It was conducted in the work area of the Tinggede Health Center, Sigi Regency between October–December 2019. The total population techniques we're used in the research with the following criteria were breastfeeding mothers with a total sample of 82 participants. Data collection was

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Table 1

Distribution of respondents by demographics social characteristics

Characteristics of the subject	Frequency	Percentage
<b>Age</b>		
31 years old	25	30.4
21–35 years old	42	51.2
>35 years old	15	18.3
<b>Total</b>	<b>82</b>	<b>100</b>
<b>Occupation</b>		
Employee	12	14.6
Entrepreneur	21	25.6
Housewife	49	59.8
<b>Total</b>	<b>82</b>	<b>100</b>
<b>Education</b>		
Elementary school	22	26.8
Junior high school	30	36.6
Senior high school <	30	36.6
<b>Total</b>	<b>82</b>	<b>100</b>
<b>Number of children</b>		
≥2	39	47.6
3<	43	52.4
<b>Total</b>	<b>82</b>	<b>100</b>
<b>Upper arm circumference</b>		
Normal	45	53.7
Abnormal	38	46.3
<b>Total</b>	<b>82</b>	<b>100</b>
<b>Low birth weight (LBW)</b>		
Yes	21	25.6
No/normal	61	74.4
<b>Total</b>	<b>82</b>	<b>100</b>

through interviews and observations. Furthermore, the Chi-Square test at a 95% confidence level ( $\alpha = 0.05$ ) was used for the statistic analysis.

The research in line with the ethical principles of research based on the ethical principles of the 2008 Helsinki Declaration and The Ethics Committee for Medical and Health Research at Tadulako University has stated that the research protocol proposed by the researchers complied with the ethical principles of the 2008 Helsinki Declaration.

### 3. Result

The characteristics distribution of breastfeeding mothers such as age, education, occupation, upper arm circumference, parity, and low birth weight, can be seen in Table 1.

The result in Table 1, showed that the age of breastfeeding mothers was generally 20–35 years to have 51.2% at the ideal age for giving birth. In addition, 59.8% of the respondents were housewives without a

steady income. However, 35.6% had junior and senior high school education. In addition, the highest number of children was 3< at 52.4%, the majority of them had many children. Meanwhile, based on nutrition and birth weight, the majority of breastfeeding mothers were normal at 53.7% and 74.4% respectively.

#### 3.1. Breast care during pregnancy and breast milk production

Table 2 showed breast care having a relationship with milk production was 0.001 or  $p$ -value  $< \alpha 0.05$ . Therefore, it was concluded that both are significantly related. All pregnant women who do breast care have adequate breast milk production, on the contrary, almost all who do not do breast care have inadequate breast milk production.

#### 3.2. Breast care and breast disease

Table 3 showed the  $p$ -value for breast care having a relationship with the disease was 0.002 or  $p$ -value  $< \alpha 0.05$ . Therefore, it was concluded that both are significantly related. Almost all pregnant women who do not experience breast disease perform breast care during pregnancy, on the other hand, almost all who experience breast disease do not perform breast care during pregnancy.

#### 3.3. Overview of breast disease due to the status of breast care during pregnancy

Table 4 showed the percentage of breastfeeding mothers that practiced breast care but did not experience disease was 93%. Conversely, the remaining 7% percent did. The percentage of those that did not practice breast care was 100%. The mothers that failed to practice breast care experienced blocked milk ducts (29%), non-protruding nipples (23%), swollen breasts (21.2%), lumps (19.2%), infections (5.7%), and mastitis (3.8%).

## 4. Discussion

#### 4.1. Breast care with breast milk production

In the Chi-Square correlation analysis, the  $p$ -value was 0.001 ( $p < 0.05$ ). Therefore, it was concluded that breast care during pregnancy has a positive and significant relationship with milk production. Breast care can be performed by cleaning the nipples and massaging the

Table 2  
Breast milk production during pregnancy

Breast care during pregnancy	Breast milk production				Total		P-value
	Inadequate		Adequate		n	%	
	f	%	f	%			
Yes	0	0.0	30	100.0	30	100	0.001
No	50	96.1	2	3.9	52	100	
Total	50	60.9	32	39.1	82	100	

Table 3  
Breast care with breast disease

Breast care during pregnancy	Breast disease				Total		P-Value
	Yes		No		n	%	
	f	%	f	%			
Yes	2	6.6	28	93.3	30	100	0.002
No	50	96.2	2	3.8	52	100	
Total	52	63.4	30	36.6	82	100	

areola mammae (the tanned area around the nipples) with coconut oil for 2–3 minutes, then gently pulling and rotating them inward and outward. This method is very useful for waging the milk reflexes and preventing dams in the breast. This method is very useful in launching breast milk reflexes. It also can prevent the occurrence of breast milk dam on the breast. This is in line with what was stated [7,8], namely mothers who perform breast care turned out to all show good milk production.

During the care period, breast activities can be performed by smoothing blood circulation and preventing blockage of the milk ducts. Furthermore, the amount of milk production and releasing processes are both influenced by prolactin and oxytocin hormones [9,10]. In addition, postpartum breast milk production can be normal due to regular care, by massaging the nipples and stimulating the breasts [10,11].

#### 4.2. Breast care with breast disease

The statistical analysis showed a  $p$ -value = 0.0012 ( $p < 0.05$ ), thus it can be concluded that breast care during pregnancy has a significant relationship with complaints of disease. Regarding breast diseases, some common complaints are milk ducts, non-protruding nipples, swollen breasts, lumps, infections, and mastitis.

Blocked breast milk is also known as a clogged duct or plugged duct. In this condition, the mother usually notices a hard lump or wedge-shaped area of engorgement that may feel tender, hot, and swollen under the armpits. This is possible because the areola area is not cleaned during pregnancy and breast massage has never been performed. Decreased breast emptying, an extensive interval between two suckling times, and clogging of non-released milk may contribute to blocked breast milk [3,12]. Furthermore, the nipple needs to protrude following the shape of the baby's mouth [13]. When they are inverted, it will be difficult to give milk directly and the baby may not get enough of it. This condition occurs because they do not perform breast care during pregnancy [1,14–16].

Swollen breasts are usually experienced by mothers that have just given birth because they are preparing to determine the amount two blood, and all the tissues within the breast. All mothers can have different duration of swelling, which can last for several days to 2 weeks depending on care performed. When swelling occurs, mothers can compress the location with warm water, then massaging it gently [16,17]. Few drops of breast milk should be released to soften the breast and nipple. Slowly can be performed first by softening the nipple [18,19].

Breast infections occur when swelling continues with fever. It is called mastitis and it requires treatment from a doctor because there has been an infection in

Table 4  
The percentage of breast disease in respondents

Breast care	Non-protruding nipples		Infection		Swollen breasts		Mastitis		Blocked milk ducts		Breast lumps		No experience		Total	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Yes	1	3.3	0	0	0	0	0	0	1	3.3	0	0	28	93.3	30	100
No	12	2.0	3	5.7	11	21.2	2	3.8	14	26.9	10	19.2	0	0.0	52	100
Total	13	15.8	3	3.6	11	21.1	2	2.43	15	18.2	10	12.1	28	34.1	82	100

the tissue. The doctor will suggest an operation to remove the source of the infection [20,21]. Mastitis is an inflammatory process of the breast accompanied by or without infection. It is also known as milk stasis. When milk stays in certain parts of the breast, due to blocked ducts, it is called breast milk stasis [17,22].

The complaints experienced by breastfeeding mothers are in line with the results [23], that there is a relationship between breast care and disease. Therefore, care is very necessary during pregnancy, as it helps to increase milk production, support the growth and development of children to be smart, have strong endurance, and prevent stunting [24–26].

## 5. Conclusion

The absence of breast care during pregnancy predisposes breastfeeding mothers to inadequate milk production. Furthermore, it leads to breast diseases such as non-protruding nipples, infections, blocked milk ducts, mastitis, and lumps.

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## Conflicts of interest

None.

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