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Breastfeeding significant correlated with decreasing of breast cancer risk

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ABSTRACT

Background: Extensive literature has established a strong correlation between breastfeeding and a decreased susceptibility to breast cancer. The objective of this study was to examine the breastfeeding status of moms diagnosed with breast cancer.
Methods: This study employs a descriptive-analytical approach with a cross-sectional design. The study comprised adult female patients (aged 20-60) who were diagnosed with Breast Cancer, irrespective of the specific kind of cancer confirmed by anatomical pathological investigation. Only non-smokers were considered for analysis. The study excluded patients who had a history of malignancy and those with a family history of cancer. A bivariate analysis was performed to evaluate the study hypothesis. The analysis was conducted utilizing the Chi-Square and unpaired T-test statistical methods using SPSS software. A p-value less than 0.05 is deemed statistically significant.
Result: This research encompassed a total of 45 individuals diagnosed with breast cancer. The majority of individuals diagnosed with breast cancer (55.6% of the total) did not engage in exclusive breastfeeding. Similarly, individuals without a breast cancer diagnosis also tended to refrain from exclusive nursing (24.4%). The association between the two variables is statistically significant, as indicated by a p-value of 0.000. The average length of nursing in individuals diagnosed with breast cancer was 2.04 ± 1.81, but in those without breast cancer, it was 10.10 ± 9.01. The statistical tests indicate a substantial association between the two variables, as evidenced by a p-value of 0.000.
Conclusion: A notable correlation exists between breastfeeding and a diminished likelihood of developing breast cancer.

Keywords: *Breast milk, Breastfeeding, Carcinoma mammae*.
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INTRODUCTION

According to the American Cancer Society Following Lung Cancer, breast cancer ranks as the second most prevalent form of cancer in women and the second leading cause of cancer-related deaths in this demographic. In 2017, there were around 252,710 new cases of invasive breast cancer, 63,410 cases of carcinoma in situ, and around 40,610 fatalities among women due to breast cancer in the United States.[1,2]

According to data from Basic Health Research, it is projected that 347,000 individuals in Indonesia have cancer, which accounts for a prevalence rate of 1.4 per 1,000 people. In 2018, the occurrence rate of cervical cancer in Indonesia was 0.8%, while the proportion of individuals affected by breast cancer was 0.5%. As a result, breast cancer ranked as the second most prevalent type of cancer in the country. The province of Yogyakarta has the most significant prevalence of breast cancer, with a rate of 2.4%. Every year, there is a consistent increase in the occurrence of breast cancer, with a prevalence of 26 occurrences per 100,000 women.[3]

The risk factors for breast cancer can be categorized into three types: hormonal, extrinsic, and intrinsic. Age, sex, ethnicity, and genetic composition are inherent risk factors for developing benign proliferative lesions in the mammary glands or familial neoplastic illnesses. These parameters are autonomous and remain constant throughout an individual's lifetime. The second classification of risk variables comprises extrinsic factors that can be somewhat modified in their impact on neoplastic processes. Lifestyle choices, dietary habits, and medical interventions such as hormonal replacement therapy or oral hormonal contraception influence these characteristics. Identifying modifiable factors can be advantageous in the development of preventive interventions to reduce the occurrence of breast cancer.[4]

Multiple research have established an association between breastfeeding and a reduced susceptibility to breast cancer. An influential study conducted in 2002 analyzed data from 50,000 breast cancer cases in 47 epidemiological studies spanning 30 countries. The study found that the risk of breast cancer in women who had given birth fell by 7% with each childbirth and by 4.3% for every 12 months of breastfeeding.[5] Based on an analysis of 32 studies, it was found that women who had given birth and breastfed had a 14% reduced risk of developing breast cancer compared to those who had given birth but never breastfed. Irrespective of a woman's number of children, nursing regularly for at least a year showed a significantly stronger protective impact. Their risk of developing breast cancer was reduced by 28%.[6]

Victora et al. found that if high-income children were breastfed for up to 12

months, it might prevent an additional 20,000 breast cancer deaths per year. This is in addition to the roughly 20,000 deaths already prevented by current global breastfeeding rates. Countries such as the United States and low- and middle-income nations support each child for two years.[7]

The risk factors for breast cancer can be categorized into three types: hormonal, extrinsic, and intrinsic. Multiple research have established an association between breastfeeding and a reduced susceptibility to breast cancer. Researchers at the Regional General Hospital, Dr. Zainoel Abidin Banda Aceh, are investigating the relationship between breast cancer incidence and nursing status.

METHODS

This study employs an analytical descriptive research approach, utilizing a cross-sectional design. The purpose of this study was to examine the breastfeeding status of moms diagnosed with breast cancer. The study sample consisted of breast cancer patients who received treatment in the oncology polyclinic and inpatient ward of Dr. Zainoel Abidin General Hospital in Banda Aceh between January 2019 and January 2021. The collected data are derived from secondary sources, specifically medical records and observational interviews. These sources provide information on the prevalence of exclusive breastfeeding and breastfeeding among patients diagnosed with breast cancer. A bivariate analysis was conducted to examine the study hypothesis. The investigation utilized a Chi-Square test and an unpaired T-Test using SPSS. A p-value less than 0.05 is deemed statistically significant.

RESULT

This study included 45 patients who fit the inclusion criteria and did not meet the requirements in the inclusion criteria. This study included 45 patients who sought treatment at the Oncology Clinic, Dr. Zainoel Abidin General Hospital, Banda Aceh, with an early diagnosis of breast cancer. The characteristics of patients are presented in Table 1.

Table 1 Shows that those with Ca mammary biopsy results were 25 patients (55.6%). Only 15 samples (33.3%) did not breastfeed; among all samples, as many as nine people (20%) gave exclusive breastfeeding. The average age of patients is 48 years; when they get married, it is 27 years, and when they first breastfeed, it is 33 years. The average duration of breastfeeding is five months. The majority of the overall study sample had one child (21 people, 46.7%) and used contraception (23 people, 51.1%).

Table 1. Characteristics of respondents (N= 45)

Variable	n	%	Mean	Standard Deviation
Biopsy Results				
Ca Mammae	25	55,6		
Not Ca999	20	44,4		
Breastfeeding				
The	15	33,3		
No	30	66,7		
Providing Exclusive Breastfeeding				
The	9	20,0		
No	36	80,0		
Patient's Age (years)			48,12	8,01
Marriageable Age (years)			27,44	3,55
Breastfeeding Age (years)			33,76	3,54
Duration of Breastfeeding (months)			5,62	7,29
Number of Children				
0	11	24,4		
1	21	46,7		
2	13	28,9		
Contraceptive Use				
The	23	51,1		
No	22	48,9		

Table 2. The relationship between breastfeeding and the incidence of breast cancer at Dr. Zainoel Abidin General Hospital Banda Aceh

	Breastfeeding				*p-value*
	Yes		No		
	n	%	n	%	
Ca Mammae	6	13,3	19	42,2	0,138
Not Ca999	9	20,0	11	24,4	

Table 3. The relationship between exclusive breastfeeding and the incidence of breast cancer at Dr. Zainoel Abidin General Hospital Banda Aceh

	Exclusive breastfeeding				*p-value*
	The		No		
	N	%	n	%	
Ca Mammae	0	0	25	55,6	0,000
Not Ca999	9	20,0	11	24,4	

Table 4. The relationship between the duration of breastfeeding and the incidence of breast cancer at Dr. Zainoel Abidin General Hospital Banda Aceh

	Duration of breastfeeding		*p-value*
	Mean	SD	
Ca Mammae	2,04	1,81	0,000
Not Ca999	10,10	9,01	

Relationship between Breastfeeding Status in Breast Cancer Patients at Dr. Zainoel Abidin Hospital Banda Aceh

Table 2 shows the relationship between breastfeeding and the incidence of breast cancer at Dr. Zainoel Abidin General

Hospital Banda Aceh.

The table above shows that those with Ca mammary generally do not breastfeed (42.2% of the total), while those not diagnosed with Ca mammary also do not breastfeed (24.4%). The relationship between the two variables is not significant (*p-value* 0,138).

Relationship of Exclusive Breastfeeding Status in Breast Cancer Patients at Dr. Zainoel Abidin General Hospital Banda Aceh

Table 3 shows the relationship between exclusive breastfeeding and the incidence of breast cancer at Dr. Zainoel Abidin General Hospital Banda Aceh.

Table 3 above shows that all patients with Ca mammary generally did not provide exclusive breastfeeding (55.6% of the total), while those not diagnosed with Ca mammary did not provide exclusive breastfeeding (24.4%). The relationship between the two variables is significant based on statistical tests (*p-value* 0,000).

Relationship between Duration of Breastfeeding in Breast Cancer Patients at Dr. Zainoel Abidin General Hospital Banda Aceh.

The data of this study is typically distributed, so the test used is an unpaired T-test. The table above shows that the mean duration of breastfeeding in patients with Ca mammary was 2.04 ± 1.81, while in those without Ca mammary was 10.10 ± 9.01. The relationship between the two variables is significant based on statistical tests (*p-value* 0,000).

DISCUSSION

Among women worldwide, breast cancer is the most often detected malignancy and the primary cause of cancer-related mortality. Research indicates that breastfeeding can lower the likelihood of developing breast cancer in women who have given birth. Moreover, there is substantial evidence suggesting that the level of protection may vary depending on the specific subtype of breast cancer, implying that nursing might offer more excellent protection against some forms of invasive breast cancer.[8]

Breast cancer, often known as Ca Mamae, refers to a collection of abnormal cells in the breast that exhibit uncontrolled growth and division. Over time, these cells aggregate into masses within the breast. Failure to manage the malignant mass might spread cancer cells to different areas of the body, a process known as metastasis. Metastases may develop in the axillary lymph nodes or supraclavicular lymph nodes. Furthermore, cancer cells can infiltrate and settle in several locations inside the body, including the bones, lungs, liver, skin, and subcutaneous tissue. Ca Mamae refers to a malignant tumor that develops in the breast tissue, specifically in the ducts or lobules of the breast.[9,10] The risk factors for breast cancer include intrinsic, extrinsic, and hormonal variables. The initial risk factors include intrinsic characteristics, namely age, sex, race, and genetic composition, which contribute to developing neoplastic disorders within the family or benign proliferative lesions of the mammary glands. These factors are autonomous and do not undergo straightforward alterations during an individual's life.[4]

The second set of risk factors consists of external factors influenced by lifestyle, nutrition, or prolonged medical interventions such as oral hormonal contraceptives or hormonal replacement therapy. These factors can be altered to some extent and impact the development of cancerous processes. Identifying factors that can be changed may help in the creation of prevention strategies aimed at decreasing the occurrence of breast cancer. Four Reproductive risk factors linked to the likelihood of developing breast cancer encompass the age at which menstruation begins, the number of pregnancies, the age at which the first delivery occurs, the duration of breastfeeding throughout one's lifetime, the age at which menopause occurs, and the utilization of menopausal hormone therapy. Anstey highlights that specific factors are linked to each subtype of breast cancer. Breastfeeding is thought to protect against breast cancer due to its status as a modifiable risk factor.[11]

Breastfeeding not only decreases the likelihood of developing breast cancer, but it also offers additional health advantages for the mother, such as lowering the risk of endometrial and ovarian cancer. Furthermore, it reduces the risk of chronic illnesses that are also contributing factors for cancer, such as hypertension and diabetes. Moreover, breastfeeding confers numerous advantages to newborns, such as reduced occurrences of diarrhea, ear infections, and lower respiratory tract infections, as well as a diminished likelihood of sudden infant death, diabetes, asthma, and childhood obesity.[11]

According to the statistical tests conducted in this study, it was shown that there was no significant association between breastfeeding and Ca mammary. However, it was observed that individuals with Ca mammary generally did not nurse their infants. This state is distinct from exclusive breastfeeding, which has a substantial correlation with the occurrence of Ca mammae as determined by statistical analyses. Extensive literature has established a connection between breastfeeding and a decreased likelihood of developing breast cancer. An influential study carried out in 2002, analyzing data from 50,000 breast cancer cases across 47 epidemiological studies in 30 countries, revealed that the risk of breast cancer in women who had given birth was lowered by 4.3% for every 12 months of breastfeeding and by 7% for each childbirth.[5]

According to a comprehensive analysis conducted in 2013, the likelihood of having breast cancer was shown to be 14% lower among women who had given birth and breastfed compared to women who had given birth but never breastfed. The protective benefit of breastfeeding persisted irrespective of the parity and was particularly pronounced among women who nursed for 12 months or more. Their risk of having breast cancer was reduced by 28%.[6]

The Relationship Between Breastfeeding Duration and Breast Cancer

The comparative tests conducted in this study revealed a strong association between breastfeeding duration and Breast Cancer incidence. Specifically, those with Ca mammae had a considerably shorter period of breastfeeding. According to Victora et al., the current global breastfeeding rates have stopped about 20,000 breast cancer deaths every year. They also suggest that extending the

duration of nursing to 12 months per high-income child could prevent an additional 20,000 deaths. The United States and low- and middle-income countries typically provide up to 2 years per child.[7]

A meta-analysis was performed on a dataset consisting of 27 distinct studies, comprising 8 cohorts and 19 case controls, encompassing a total of 36,881 instances of breast cancer. The risk estimates for the correlation between breastfeeding (ever versus never) and worse breast cancer outcomes for estrogen receptor (ER) and progesterone receptor (PR) were consistent across three cohort groups and three case-control studies after accounting for different covariates.[12] The American Academy of Pediatrics advises that infants should be exclusively breastfed for approximately the initial six months of life. Afterward, nursing should be resumed when complementary foods are introduced, and it is recommended to continue breastfeeding for a year or more, as preferred by both the mother and the baby. Studies indicate that the length of time a mother breastfeeds her child is linked to a potential decrease in the risk of developing breast cancer.[13] The benefits of breastfeeding in reducing risk were infrequently observed in individuals who breastfed exclusively for their first kid but were more prominent in women over 25 who breastfed many children.[14]

The protective effects of breastfeeding are particularly pronounced in premenopausal women, but they continue to exist in postmenopausal women, even after 50 years since the initiation of nursing.[15] The preventive impact of breastfeeding against breast cancer is stronger when a woman breastfeeds her first kid for a longer length. Additionally, the cumulative effect of nursing across a woman's lifetime gives even better protection against breast cancer. Thirty-one Biologically, there are multiple reasons why nursing is believed to have a preventive effect on breast cancer and is associated with major health benefits for women. The reduced incidence of breast cancer may be attributed to the vulnerability of fully developed mammary glands to cancer-causing substances, which is caused by the decreased growth activity of the mature epithelium in women who have given birth.[16] During nursing, there is a reduction and complete removal of estrogen through breast fluid, as well as the excretion of cancer-causing substances through breast tissue.[17]

According to research undertaken by Cancer Research UK, a brief period of nursing in women in industrialized countries plays a substantial role in the elevated occurrence of breast cancer in those countries. The findings indicated that the risk of breast cancer fell by 7.0% for each childbirth, along with a decrease of 4.3% for every 12 months of breastfeeding. Thirty-five Notwithstanding these results, numerous researchers remain skeptical regarding the potential protective effects of breastfeeding against breast cancer.[17]

They assert that the data collected thus far is frequently inconsistent and contradictory. Hence, it is imperative to take into account the impact of each childbirth while examining the correlation between nursing and breast cancer. Additionally, the study revealed that the stated duration of breastfeeding lacked reliability, as it was commonly approximated to increments of 6 or 12 months, particularly among women who breastfed for extended periods.[5]

Women who breastfed their infants for more than 12 months had a modestly reduced occurrence rate of breast cancer. Among the women who had given birth, those who did not have cancer were more inclined to breastfeed compared to those who later acquired breast cancer (79% versus 71%). Nevertheless, relying solely on a person's nursing history may be an excessively simplistic measure. Instead, it is crucial to emphasize a dose-response relationship, whereby longer durations of breastfeeding are associated with a greater likelihood of establishing causal connections. The findings demonstrated a negative correlation between the length of nursing and the possibility of developing breast cancer.[17]

The decline in relative risk ratios of breast cancer linked to breastfeeding remained statistically unchanged for women in both industrialized and developing nations. It did not vary with age or ethnicity. Additional research has examined risk factors for breast cancer, such as the length of time spent breastfeeding, among Asian and African populations. Data are scarce about the correlation between the length of nursing and the likelihood of developing breast cancer in these specific demographics.[17]

Michels et al., in the Nurse's Health Study, A comprehensive analysis of breastfeeding duration involving about 90,000 women, revealed that the relative risk (RR) for nursing less than three months was 0.86, 0.95 for 7-11 months, 0.86 for 12-23 months, and 1.11 for 24 months or more, in comparison to women who had never nursed. These findings indicate the significance of the length of time a mother breastfeeds in decreasing the likelihood of developing breast cancer.[18]

Zheng et al. demonstrated that mothers who breastfed their kids for over 24 months had an odds ratio of 0.46 (95% CI, 0.27-0.78) compared to women who breastfed their children for 1-6 months. The statistics indicate that nursing for an extended period decreases the likelihood of developing breast cancer.[19] Hajian-Tilaki et al. conducted a study including 100 women with breast cancer and 200 control subjects. They found that the length of time a woman breastfed her child was negatively associated with the likelihood of developing breast cancer. During a case-control study conducted in Tunisia from 2006 to 2009, a total of 400 breast cancer cases and 400 controls were examined. The researchers noted a negative correlation between the duration of breastfeeding and the chance of developing breast cancer.[20,21]

CONCLUSION

The study revealed that individuals with mammary carcinoma typically did not lactate (42.2% of the overall population), although those without a diagnosis of mammary carcinoma similarly abstained from breastfeeding (24.4%). The correlation between the two variables is not statistically significant (p-value 0.138). The majority of patients with mammary carcinoma did not exclusively breastfeed (55.6% of the total), but those without a breast cancer diagnosis also had a low rate of exclusive breastfeeding (24.4%). The statistical tests indicate a significant association between the two variables (p-value 0.000). The average length of breastfeeding in individuals with breast

cancer was 2.04 ± 1.81, whereas in those without breast cancer, it was 10.10 ± 9.01. The statistical tests indicate a substantial association between the two variables, as evidenced by a p-value of 0.000. Extended breastfeeding, lasting over 12 months, has been associated with a decreased likelihood of developing breast cancer. This protective effect is further enhanced when a person has multiple children.

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Conflict of Interest
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Author Contributor
GGM, NF, and FR were involved in conceiving, designing, and supervising the manuscript. GGM and FR conducted the study. All authors prepare the manuscript and agree for this final version to be submitted to this journal.

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