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ORIGINAL ARTICLE

Relationship Between Menarche Age and Breast Cancer Incidence in Adult Women

Hubungan Usia *Menarche* dengan Kejadian Kanker Payudara pada Wanita Dewasa

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ABSTRACT

Background

Breast cancer is a non-communicable disease that is a health problem worldwide. Based on breast cancer prevalence data according to the World Health Organization (WHO) in 2020, 2.3 million women have been diagnosed, and 685,000 of them have died from breast cancer. Several factors can increase the risk of possible breast cancer incidence, some of which are age of menarche, nulliparity (never giving birth), and obesity. The purpose of this study was to determine the relationship between age at menarche, body mass index (BMI), and nulliparity with the incidence of breast cancer in adult women.

Methods

This cross-sectional study was conducted at Dharmais Cancer Hospital, Jakarta, with 104 respondents aged 19-59 years with breast complaints during March-May 2024. By excluding respondents with consecutive non-random sampling techniques. Data analysis using the Mann-Whitney test with a probability level ($p < 0.05$).

Results

The data showed that 98 respondents had breast cancer, and over 80% of them had the no special type (NST) breast cancer. Meanwhile, 6 respondents were not diagnosed with breast cancer. There were 62 respondents with normal menarche age (>12 years), with a p-value of 0.979. Additionally, 91 respondents had multiparity, with a p-value of 0.891. Furthermore, 74 respondents had an excessive body mass index (BMI), with a p-value of 0.336.

Conclusions

Based on statistical analysis, it can be concluded that there is no significant relationship between menarche age, body mass index (BMI), and parity with breast cancer in adult women.

Keywords: Breast Cancer; Body Mass Index (BMI); Menarche Age; Nulliparity.

ABSTRAK

Latar Belakang

Kanker payudara adalah penyakit tidak menular yang menjadi masalah kesehatan di seluruh dunia. Berdasarkan data prevalensi kanker payudara menurut Badan Kesehatan Dunia (*WHO*) pada tahun 2020 didapatkan 2.3 juta wanita telah terdiagnosis dan 685,000 diantaranya meninggal akibat kanker payudara. Terdapat beberapa faktor yang dapat meningkatkan risiko kemungkinan kejadian kanker payudara, beberapa di antaranya yaitu : usia m*enarche, nulliparitas*, dan obesitas. Tujuan dari penelitian ini adalah untuk mengetahui hubungan antara usia *menarche* dan kejadian kanker payudara pada wanita dewasa.

Metode

Penelitian dengan desain potong lintang ini dilakukan di Rumah Sakit Kanker Dharmais, Jakarta dengan jumlah responden sebanyak 104 perempuan berusia 19-59 tahun dengan keluhan payudara pada periode Maret-Mei 2024. Pemilihan sampel menggunakan teknik *consecutive non-random sampling*. Analisis data menggunakan uji *Mann-Whitney* dengan tingkat kemaknaan ($p < 0.05$).

Hasil

Hasil penelitian mendapatkan 98 responden yang menderita kanker payudara, dan >80% di antaranya memiliki subtipe *no special type (NST)*. Sedangkan 6 responden lainnya tidak menderita kanker payudara. Terdapat 62 responden dengan usia *menarche* normal (>12 tahun), 91 responden dengan multiparitas, dan 74 responden memiliki indeks massa tubuh (IMT) berlebih. Tidak terdapat hubungan bermakna antara usia *menarche* dan kejadian kanker payudara dengan nilai p =0.979.

Kesimpulan

Tidak didapatkan hasil hubungan bermakna antara usia menarche, indeks massa tubuh (IMT), dan paritas dengan kanker payudara pada wanita dewasa.

Kata Kunci: Indeks Massa Tubuh (IMT), Kanker Payudara, Paritas, Usia *Menarche*.

INTRODUCTION

Breast cancer is a non-communicable disease and a significant global health issue. According to World Health Organization (WHO) prevalence data from 2020, 2.3 million women were diagnosed with breast cancer, and 685,000 of them died from the disease.[1] In Indonesia, data from the Global Burden of Cancer (GLOBOCAN) in 2020 indicated that there were 68,858 cases of breast cancer, representing 16.6% of the total 396,914 new cancer cases in the country.[2] Additionally, the 2018 Basic Health Research or Riset Kesehatan Dasar (Riskesdas) reported 1,017,290 cancer patients in Indonesia, with 40,210 from DKI Jakarta.[3] At Dharmais Cancer Hospital, one of the country's cancer referral hospitals, breast cancer was the most common type, with an incidence rate of 19.18% in 2018.[4]

Some factors that can increase the risk of breast cancer include female gender, age over 50 years, family history of genetics, previous history of breast disease, early menarche (under 12 years) or late menopause (over 55 years), reproductive history (such as being childless or not breastfeeding), hormonal factors, obesity, alcohol consumption, chest radiation exposure, and environmental factors.[5]

Menarche, the first menstrual cycle in women, is influenced by the hormone estrogen, which can increase the risk of breast cancer.[6] The hormone estrogen becomes active when a woman menstruates for the first time.[7] Earlier menarche is associated with faster ovulation cycles, which increases exposure to estrogen, thus increasing the risk of breast cancer.[6]

Nulliparity (never giving birth) is associated with high menstrual cycles and long exposure to estrogen that is not balanced by the influence of progesterone. Estrogen hormones can stimulate the division and proliferation of breast tissue and promote growth factors that can boost the mammary epithelium, thereby increasing the likelihood of mutations and abnormalities in breast tissue.[8,9]

Body mass index (BMI), according to the WHO, is divided into five categories: underweight, normal, overweight, obesity grade I, and obesity grade II.(49) Obese women have increased fat in the body, which can increase the risk of inflammation, as well as higher estrogen hormones in the blood, because fat cells can produce the hormone estrogen.[8,9]

Based on Ningrum's research, there is an association between the age of menarche and the incidence of breast cancer in Indonesia (p = 0.01).[7] In line with Sukmayenti's research at Dr. M. Djamil Padang Hospital, which also found a significant relationship between the age of menarche and breast cancer (p = 0.000).[10] However, it is not in line with Zuraidah's research at Cipto Mangunkusumo Hospital, which is different (p> 0.05), so it can be concluded that the age of menarche does not affect the incidence of breast cancer.[6]

This study aims to find the relationship between menarche age and the incidence of breast cancer in adult women. Previous studies conducted in public hospitals yielded inconclusive results. This study was conducted at Dharmais Cancer Hospital, a Top Referral Cancer Hospital, so we hope to provide a clearer picture of breast cancer patients.

METHODS

This study was an observational analytic with a cross-sectional design conducted in October 2024 at Dharmais Cancer Hospital Jakarta using a consecutive non-random sampling technique on 104 respondents who met the inclusion criteria, namely inpatients and outpatients at the oncology clinic at Dharmais Cancer Hospital with complaints related to the breast, adult women aged 19-59 years, all parities, who can communicate well, and are willing to participate in interviews. Additionally, the exclusion criteria included incomplete medical records, alcohol consumption >1 glass/day, pregnancy, and refusal to participate. Data collection involved primary data through interviews with subjects using questionnaires that contained questions about the subject's age at menarche, number of parities/births, as well as weight and height to calculate BMI at the time of breast cancer diagnosis. Secondary data (medical records) from Dharmais Cancer Hospital were also used to verify the diagnosis of breast cancer based on radiology or histopathology, along with supporting examinations. Data analysis employed the Mann-Whitney test with a significance level of $p < 0.05$.

This research proposal has been approved by the Research Ethics Committee of the Faculty of Medicine, Universitas Trisakti, with number 034/KER/FK/08/2024, and by the ethics committee of Dharmais Cancer Hospital in Jakarta, with number DP.04.03/11.7/196/2024. All data and other information obtained from the research will be kept confidential to protect and respect the rights of research subjects and will only be used for academic purposes.

RESULTS

The characteristics of the study respondents consisted of age, age of menarche, parity, body mass index, and breast cancer, classified based on histopathological examination, presented in Table 1 as follows:

Table 1. Distribution of respondent characteristics

Variable	Respondent (n)	Percentage (%)
Age		
≥46 year old	38	36.5%
<46 year old	66	63.5%
Menarche age		
≤12 year old	42	40.4%
>12 year old	62	59.6%
Parity		
0 (*nulliparity*)	13	12.5%
≥1	91	87.5%
Body mass index		
Low	3	2.8%
Normal	27	26.6%
High	74	71.1%
Breast cancer		
CA mammae no special type (NST)	87	83.6%
CA mammae ductal carcinoma in situ (DCIS)	3	2.9%
CA mammae ductal invasive	2	1.9%
CA mammae lobular	1	1.0%
CA mammae lobular invasive	3	2.9%
CA mammae mucinous	2	1.9%
Non-*CA mammae*	6	5.8%

Attached to table 1 above, respondents are adult women aged 19-59 years, grouped by≥46 years and <46 years. The groupings were based on research conducted by Mirsyad at Ibnu Sina Hospital, Makassar, in 2018, which found that the age of breast cancer incidence was highest at the age of 46-55 years. This study found that more respondents were <46 years, with 66 respondents (63.5%).[11] The menarche age grouping was divided into two groups, namely respondents with early menarche age (≤12 years), which amounted to 42 (40.4%), and normal (>12 years), which had a greater number, 62 respondents (59.6%). Based on parity, all respondents were grouped into nulliparity (0) and multiparity (≥1). A higher number of respondents with multiparity were obtained, namely 91 respondents (87.5%), compared to patients with nulliparity. Respondents' body mass index (BMI) is grouped into less than, normal, and excess BMI. The results showed that most respondents had excessive BMI, with 74 respondents (71.1%). The diagnosis of breast cancer is classified based on the results of histopathological results, with most types of breast cancer being classified as no special type (NST), and without information, 87 (83.6%) respondents were classified as such, when compared to other types.

Mann-Whitney test analysis was used to find the relationship between age at menarche, number of parities, and body mass index (BMI) as independent variables with the incidence of breast cancer in adult women as the dependent variable. Bivariate analysis could not be performed using the chi-square test because>20% of cells had expected counts <5; therefore, the Mann-Whitney test was used. The results of the analysis test will be presented in Table 2 as follows:

Table 2. The association of age at menarche, parity, and body mass index (BMI) with breast cancer incidence in adult women

Variable	Breast cancer			Total	p-value
	Non-CA mammae	CA mammae no special type (NST)	CA Mammae specified		
Menarche age					
≤12 year old	3 (7.1%)	35 (83.3%)	4 (9.5%)	42 (100%)	0.979*
>12 year old	3 (4.8%)	52 (83.8%)	7 (11.2%)	62 (100%)	
Parity					
0 (nulliparity)	1 (7.6%)	11 (84.6%)	1 (7.6%)	13 (100%)	0.891*
≥1	5 (5.4%)	76 (83.5%)	10 (10.9%)	91 (100%)	
Body Mass Index					
Normal	2 (7.4%)	21 (77.7%)	4 (14.8%)	27 (100%)	0.336*
Abnormal	4 (5.1%)	66 (85.7%)	7 (9.0%)	77 (100%)	

*Mann-Whitney test (p-value <0,05)

Based on Table 2, breast cancer is classified based on histopathological results, which are divided into three types: patients who do not have breast cancer, no special type (NST), and specific type breast cancer (such as ductal, lobular, and mucinous). The division was not as detailed as in the univariate analysis in Table 1 because the numbers were too small, so the data could not be processed. In both the groups with menarche age ≤12 years and >12 years, it was found that most respondents (>80%) had breast cancer of no special type (NST), with a p-value = 0.979. Thus, it can be concluded that there is no significant relationship between the age of menarche and the incidence of breast cancer in adult women.

Based on parity, in both groups >80% of respondents had no special type (NST) breast cancer, with a p value = 0.891. It means that there is no significant relationship between parity and the incidence of breast cancer in adult women. To simplify BMI grouping, respondents with under- and over-BMI were combined into 1 group as abnormal BMI, allowing analysis using a 2x3 table. A similar result was also found in statistical analyses, which showed that most respondents in both groups had been diagnosed with breast cancer of no special type (NST), with a p-value = 0.336. According to this result, it can be concluded that there is no significant relationship between BMI and the incidence of breast cancer in adult women.

DISCUSSION

The data displayed in Table 1 shows that most respondents are <46 years old with normal menarche age (>12 years), have given birth, have excess BMI, and almost all of them have breast cancer, especially the no special type (NST) subtype. There are only six respondents who do not have breast cancer. The characteristics shown in this table may be risk factors for breast cancer incidence. When compared with previous studies, it turns out that the results of this study are in line with research by Bernadette NL, et al. at Sanglah General Hospital in 2014-2019, which found that breast cancer with the most histopathological subtypes was breast cancer no special type (NST), as many as 138 (85.7%) cases.[12] The difference in results was found in the age of the subject. Theory states that the incidence of breast cancer is mainly found at the age of over 50 years, with >40% of them being over 50 years old.[8,9] However, in this study, all subjects were between 19 and 59 years old, and almost 85% had breast cancer. In addition, based on a literature review by Łukasiewicz in 2021, it is said that multiparity can reduce the risk of breast cancer incidence, while nulliparity can increase the risk of breast cancer.[9] However, in this study, different results were obtained, where >80% of respondents were women with multiparity.

Based on the data presented in Table 1, 62 respondents had a normal menarche age (>12 years). The results of this study showed there was no significant relationship between menarche age and the incidence of breast cancer in adult women (p = 0.979). Based on theory, it is said that a younger

age of menarche indicates an earlier and longer exposure to the hormone estrogen, which is a risk factor for breast cancer. However, in this study, there was no significant association between groups with early or normal menarche age and breast cancer incidence. This may be because the number of women with early menarche (<12 years old) born in the early 1990s was only 1/3 of the total.[13] According to research conducted by Sudikno, et al. by analyzing Riskesdas data in 2010, it was found that the highest proportion of menarche age in adolescents 10-19 years old was at the age of 18 years, which amounted to 99.6%.[14] As a result of the age distribution of research respondents at Dharmais Cancer Hospital, most of whom were women born before 2000, the age of menarche was found to be older than that of women born after 2000. In addition, breast cancer risk factors are multifactorial; many other factors besides menarche age can affect breast cancer, such as genetic history, use of estrogen hormones, use of birth control pills, smoking, and others.[10]

The results of this study are consistent with research conducted by Zuraidah, et al. at Dr. Cipto Mangunkusumo Hospital from 2010-2014, which found that age at menarche did not affect breast cancer incidence (p-value = 1.000), 23 (26.7%) respondents had menarche age ≤12 years, while 63 (73.3%) had menarche age >12 years. These results can be influenced by several factors, such as questionnaire-based data collection, which makes it difficult to determine the correct age of menarche because there is a possibility of bias or misremembering the age of menarche by some patients. This study used a retrospective, cross-sectional design and analyzed the data using the chi-square test, followed by Fisher's exact test.[6] This is in line with research conducted by Syarlina et al in 2014-2017 at RSUP DR. M. Djamil Padang with respondents aged 30-60 years, based on statistical tests, it was found that there was no significant relationship between the age interval of menarche and the age at delivery of the first child who was full term with the incidence of breast cancer with a p-value = 0.413. There are different results across previous studies, which may be due to differences in social factors and the racial backgrounds of research respondents. This study is an observational analytic study with a case-control approach (retrospective) and uses the chi-square statistical test and Fisher's exact test.[5] Another study that also obtained similar results was a study conducted by Claude J, et al. with a cohort research design with a weighted Cox-regression approach, which found that the age of menarche was not shown to significantly impact breast cancer patients with a genetic history of BRCA 1 and BRCA 2. According to Claude J, et al., these results were expected because, based on several previous studies, the age of menarche has only a weak impact on the incidence of breast cancer.[15] In line with the research of Dati TY, et al. at Prof. Dr. W. Z Johannes Kupang Hospital in East Nusa Tenggara in 2017-2019, a p-value = 0.075 was obtained, indicating that there was no relationship between early menarche age and breast cancer incidence. Various influencing factors, such as lifestyle, nutritional status, and others, can make it possible not to find a relationship between the two variables.[16] Another study conducted by Sari SE, et al. in Padang on the influence of breast cancer risk factors with estrogen receptor expression, menarche age is divided into ≥12 years and <12 years. This research is an observational-analytic study with a cross-sectional design. The results of a bivariate analysis using the chi-square test did not reveal a significant association between menarcheal age and estrogen receptor expression in breast cancer patients (p = 0.17).[17] In line with research in considering the age of menarche, MW et al, which states that there is no significant relationship between menarche age and all factors that increase mortality in breast cancer, both before and after adjustment for confounding factors. The highest age at menarche was 13 years, with 3,429 respondents (27.6%). The study did not explain why the results were not related. This may be due to interview bias.[18]

However, the results of this study were inconsistent with those of Mahrani I, et al.'s univariate analysis at H. Adam Malik Hospital in 2019-2020, which found that 66 (66.6%) CA mammary patients experienced menarche at <12 years.[19] In accordance with Ningrum MP, et al. research on breast cancer patients of childbearing age (15-49 years) using secondary data from non-communicable disease research in 2016. Ningrum used an observational analytic method and a cross-sectional approach, with a chi-square statistical test, obtaining significant results for the association between

menarche age and breast cancer incidence (p-value = 0.01). The results of this study are in accordance with existing theory, which states that early menarche age is related to high exposure to the hormone estrogen in women, which is associated with the development of breast cancer.[7] The study is in accordance with analytical research by Sukmayenti, et al., conducted at DR. M. Djamil Padang Hospital in 2018, with a case-control study design and chi-square statistical test. Sukmayenti defined early menarche age as <12 years; the results yielded a p-value of 0.00, indicating a significant relationship between early menarche age and breast cancer incidence.[10] The differences in the results of these studies can be influenced by differences in the research methods used, as well as by differences in research locations, which also affect the results of the study. Another study conducted at Kaohsiung Medical University (KMU), Chung-Ho Memorial Hospital, Taiwan, from September 2013 to January 2020, using a cross-sectional design, found a significant association between early menarche and early breast cancer at age 40, with a p-value of 0.003. The division of menarcheal age can be categorized into two groups: ≤11 years and >13 years. In addition, it is said that the age of menarche ≥16 years is significantly associated with a reduced risk of early breast cancer in women aged 40 years, with a p-value = 0.005.[20]

Parity describes the number of births experienced by a woman, either resulting in a live or dead fetus. Parity was classified into nulliparity (never given birth or miscarriage) and multiparity (had given birth ≥1). The data obtained showed that most respondents (91 respondents) had already given birth, and 76 (83.5%) of them were diagnosed with breast cancer, no special type (NST). Based on the results of the Mann-Whitney bivariate analysis, the p-value = 0.891, indicating no significant relationship between parity and the incidence of breast cancer in adult women.

The results of this study are consistent with the observational research by Apriyanti NKV, et al., conducted at Sanglah General Hospital, Denpasar, in September-November 2024, with a cross-sectional descriptive design. In the study, parity was classified into four groups: 0, 1, 2, and 3. The highest rate was found among respondents with three or more parities (35%). Based on theory, it is said that the process of giving birth, followed by breastfeeding, will reduce the risk of possible breast cancer in women because it prevents the menstrual cycle for a while. However, this study did not collect data on breastfeeding history, which may have influenced the absence of an association between parity and breast cancer incidence. Especially for triple-negative subtype breast cancer, it is not influenced by the number of parities, because the subtype does not express estrogen receptors (ER) and progesterone receptors (PR).[21] In addition, observational analytic retrospective research with a case control study design by Hasnita Y, et al. at RSUP. Dr. M. Djamil Padang in January-March 2019, with respondents who were breast cancer patients aged 40-65 years, totaling 294, divided into 147 case groups and 147 control groups. Based on the results of a bivariate analysis using the chi-square test, there was no association between parity and breast cancer (p-value = 0.107). According to Hasnita Y, breastfeeding is a factor that reduces the risk of breast cancer because it reduces estrogen levels, so parity is not directly related to the incidence of breast cancer.[22]

However, the results of this study are not in line with the analytical observational research with a cross-sectional approach by Rahayu SA, et al. in 2017, which was conducted at Dr. H. Abdul Moeloek Hospital, Bandar Lampung, and used primary data collected through a questionnaire and a sample of 67 respondents. The chi-square test yielded a p-value of 0.042, indicating that parity is associated with breast cancer incidence.[23] The difference in the results of these studies can be influenced by demographic factors of the population and the number of research samples, as well as the grouping of parity. In Rahayu's research, parity was grouped into nulliparous, primiparous, multiparous, and grandmultiparous, with the largest group being multiparous, comprising 28 respondents (41.8%).

Parity or childbirth is, of course, closely related to breastfeeding, which is generally experienced by the majority of pregnant women after childbirth. A woman who has become a

mother usually has the desire to breastfeed her child after giving birth. Breast milk is an important source of nutrition and nutrients for newborns, because at that age, babies cannot digest food from other sources, so it is necessary to provide exclusive breastfeeding to babies up to 6 months of age, before any additional food is given. The results of quantitative research by Irfannur AM, et al. in Samarinda with female respondents with breast cancer aged 25 – 65 years, totaling 216 respondents. Irfannur used a case-control approach, and the results of the univariate analysis test found that the majority (160 respondents, 74.1%) were women who did not breastfeed. Bivariate analysis using the chi-square test, which assesses the relationship between breastfeeding history and the incidence of breast cancer, results in a p-value = 0.000, so it can be concluded that there is a significant relationship between breastfeeding and the incidence of breast cancer.[24] Another study conducted by Dati TY, et al. at the Prof. Dr. W. Z Hospital. Johannes Kupang on November 30 - December 12, 2020, after conducting a bivariate analysis test using chi-square to assess the relationship between breastfeeding history and breast cancer incidence, the p-value = 0.215, so it can be concluded that breastfeeding has no impact on the incidence of breast cancer. This could be due to the multifactorial risk of breast cancer; besides that, Dati TY did not examine the length of breastfeeding time. Based on previous research, it is recommended to breastfeed babies for at least 12 months to maximize the benefits.[16] Another study by Riswan M, et al. at RSUD dr. Zainoel Abidin, Banda Aceh, from October to November 2014, with the case control method, found that breastfeeding had an impact on the incidence of breast cancer with a p value = 0.000.[25]

Body mass index (BMI) is one of the measurements used to assess a person's nutritional status. The grouping is divided into underweight, normal, and overweight based on BMI in univariate analysis. However, in the bivariate analysis, it is divided into respondents with normal BMI (18.5-22.9 kg/m2) and abnormal BMI (underweight and overweight), allowing analysis using a 2x3 table. Of the 104 respondents, 77 of them had abnormal BMI, and most of them (66 respondents, 85.7%) had breast cancer of no special type (NST). While the other 27 respondents had a normal BMI. Based on the Mann-Whitney bivariate analysis, the p-value = 0.336, indicating no significant relationship between BMI and breast cancer incidence in adult women.

The results of this study are in line with research conducted by Cahyanti, et al., which was conducted at Ganesha General Hospital in 2019-2021 with a cross-sectional method and a sample of 94 medical record data. The results of statistical tests found that BMI did not have a significant relationship with intrinsic or molecular subtypes in breast cancer patients, with a p-value> 0.05. This may be influenced by other risk factors that also play a role in the incidence of breast cancer, such as genetic, environmental, and lifestyle factors, as well as parity, breastfeeding, and exercise.[26]

However, another study conducted by Sari SE, et al. in Padang city using secondary data from DR. M. Djamil Padang Hospital and Breast Cancer Registration by the Association of Indonesian Oncology Surgeons Padang. Body mass index (BMI) is categorized into BMI < 30 kg / m^2 and ≥ 30 kg / m^2, based on bivariate analysis using the chi-square statistical test obtained a p value = 0.06 which indicates the influence of BMI on estrogen receptor (ER +) in breast cancer patients, where patients with BMI ≥ 30 kg / m^2 are likely to have ER- which means there is more aggressive tumor growth and proliferation, as well as a higher relapse rate so that they will have a worse prognosis.[17] Differences in research results can be influenced by the BMI grouping used. Another study conducted by Kang L, et al. found that an increase in BMI was weakly associated with the risk of breast cancer incidence, with a p-value = 0.00. It is said that an increase in body weight of 5 kg/m2 is associated with a 2% increase in the risk of breast cancer incidence. The results of the study stated that BMI is related to the risk of breast cancer in post-menopausal women, which can be caused by high estrogen hormones derived from the aromatization of androstenedione in fat. However, it was stated that there was no association between BMI and the risk of breast cancer in pre-menopausal women. This could be due to the protective effect of increased body weight in early

pre-menopause, leading to longer anovulatory cycles and lower estrogen and progesterone levels.[27]

This study has some limitations, such as histopathological results that were not explicitly described, menarche age, which was not documented in the medical record and had to be obtained by questionnaire, and the short study period, all of which can lead to false conclusions. We suggest a prospective study to ensure all data are collected accurately. By knowing the relationship between menarche age and the incidence of breast cancer, we can educate women with a younger menarche age to be more concerned about their health and willing to do breast examination regularly.

CONCLUSION

Based on the research conducted, it was concluded that among all adult women with breast complaints from March to May 2024, 94.2% (98 women) were diagnosed with breast cancer, and most of these patients were under 46 years old (63.5% = 66 women). The analyses showed that there are no significant relationships between menarche age, patients' BMI, and parity with the incidence of breast cancer (p value = 0.979, 0.336, and 0.891, respectively).

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AUTHORS CONTRIBUTION

NTNB was responsible for data collection under the supervision of FK. LMS and NTNB together prepared the proposal and the study reports.

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CONFLICT OF INTEREST

The author(s) declare no competing interest in this study.

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