

The Effect of Age on Delays in Treatment of Ca Mammae in Patients Who Take Alternative Medication in Surakarta City

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Abstract

The study explores the impact of age on treatment delays for breast cancer (Ca mammae) in patients using alternative therapies in Surakarta City, 2024. It addresses significant delays in seeking conventional medical care, with a focus on patients who have opted for alternative treatments such as herbal remedies, spiritual therapy, and traditional therapies. Despite the known effectiveness of conventional treatment, many patients in Surakarta present at advanced stages (stage III/IV), which increases the risk of poor outcomes. This study finds that older patients (>50 years) and those with low levels of knowledge about breast cancer experience the most significant delays in treatment. Furthermore, the type of alternative treatment used is strongly associated with delay in diagnosis, with spiritual therapies contributing the most to late-stage diagnoses. The findings suggest that social and cultural factors, such as familial or community pressures, also play a key role in treatment decisions. This research highlights the need for targeted educational interventions to increase awareness of the importance of early detection and to reduce the reliance on non-scientific alternative therapies. The study concludes that a combination of age, knowledge, and socio-cultural factors significantly influences the delays in breast cancer treatment in Surakarta.

Keywords: Breast cancer, alternative medicine, treatment delay, age factor, health literacy.

INTRODUCTION

Ca mammae ranks first in Indonesia with the highest number of Ca cases and is one of the main causes of death due to Ca. According to Globocan data, the number of new cases of mammary Ca in 2020 reached 68,858 (16.6%) of the 396,914 new Ca cases in Indonesia. On the other hand, the number of deaths due to Ca mammae has exceeded 22,000 cases. In addition, 70% of cases detected are at an advanced stage, even though 43% of deaths due to Ca can be overcome if detected early. In addition to the relatively high mortality rate, delays in treating Ca patients cause an ever-increasing financial burden. In 2019-2020, Ca treatment cost BPJS funds of around IDR 7.6 trillion (Sung et al. 2021).

The arrival of Ca mammae patients at this advanced stage can be caused by three factors, namely, first, delay (patient delay) which occurs due to patient factors. The second is the delay in referral. Third, the patient's delay in receiving treatment (treatment delay). Patient delay is the time between the patient's first complaint and the first medical consultation. Evidence shows that a delay of more than 3 months significantly reduces survival in Ca mammae patients (Djatkiko et al. 2021). The reasons given for patient delays included fear of coming to the hospital, lack of awareness of the symptoms of Ca mammae, cultural factors, and lack of knowledge and awareness to carry out early detection procedures (Djatkiko et al. 2021).

Early treatment before Ca metastasizes is one of the keys to successful treatment. The three main ways of treating Ca are surgery, radiation therapy, and chemotherapy, all of which can be called conventional methods (Stephens F.2021). Apart from using conventional methods, some patients tend to do everything they can to treat their Ca before coming to the clinic for conventional therapy. Some of them try to use traditional medicine, alternative medicine and complementary medicine which are also known as Traditional, Complementary, and Alternative Medicine (TCAM). Efforts to search for TCAM before conventional therapy often cause delays in stage detection until appropriate conventional treatment, thereby increasing the risk of patient death (DiPiro et al. 2021).

Based on the explanation above, this literature was compiled to determine the effect of age on delays in treating Ca mammae in sufferers undergoing alternative treatment, especially in the city of Surakarta in 2024.

Authenticity of Research

Research on the effect of alternative medicine on delays in diagnosing Ca mammae has been carried out previously by researchers in various countries. However, research regarding this topic has never been carried out in the city of Surakarta. This is very crucial considering that Ca mammae ranks first in Ca in

women.

Table 1. List of Previous Research Regarding the Effect of Alternative Medicine on Delays in Treatment of Mammary Ca

No	Title and Researchers	Method	Number of samples and stage	Results
1	Use of Alternative Medicine Is Delaying Health-Seeking Behavior by Bangladeshi Breast Cancer Patients (Akhtar et al., 2018.)	Interview	Number of samples: 200 samples were randomly selected from outpatients who came for treatment after diagnosis of Ca mammae. Stage: no patients were found in stage I, only 17% in stage II (n=34). Most of the patients are in advanced stages. 66.5% (n=133) were in stage III and 16.5% (n=33) of respondents were in stage IV.	46.5% (93) of patients sought alternative medical help. 86.02 % (80) preferred to use homeopathy. The average length of use of alternative medicine was 2.9±4.7 months, on average. Patient delays is 4 months. Use of alternative medicine was found to be significantly (p<0.05) associated with Patient delay (p=0.019), provider delay (p<0.0001), total delay (p<0.0001), homeopathic use (p<0.0001) and place of residence (p = 0.014). Analysis Logistic regression showed that alternative treatments were 4 times more likely to cause delays seeking help (OR=4.353; 95% THERE 2.2.7-8.587) p<0.0001. The r coefficient is 0.488, p<0.0001 and there is a positive relationship between delay and duration of use of alternative treatments.
2	Complementary and Alternative medicine (CAM) use and delays in presentation and diagnosis of breast cancer patients in public hospitals in Malaysia. Mujar et al., 2017.	Interview with a structured questionnaire	Number of samples: 340 samples of Ca mammae patients who visited 6 public hospitals in Malaysia Stadium: 17,4%, 37,6%, 33.5% and 11.5% each was diagnosed at Stages I, II, III and IV	The prevalence of CAM use was 46.5% (n = 158). CAM use is associated with Delay in presentation (OR 1.65; 95% CI: 1,05, 2,59), diagnosis (OR 2,42; 95% CI: 1,56, 3,77) and mammary Ca treatment (OR 1.74; 95% CI: 1.11, 2.72) in univariate analysis. However, after adjusting for other covariates, CAM use was associated with delayed presentation (OR 1.71; 95% CI: 1.05, 2.78) and diagnosis (OR 2.58; 95% CI: 1.59, 4.17) but not for the treatment of Ca mammae (OR 1,58; 95% CI:0,98,2,55). CAM use was significantly associated with delayed presentation and resolution of diagnosis.

3	Alternative Therapy Used as Primary Treatment for Breast Cancer Negatively Impacts Outcomes He et al., 2011.	Interviews using telephone calls	Number of samples: 61 samples who chose therapy alternative for primary management of Ca mammae. Stage: median stage at initial presentation was II; The median re-presentation stage was IV.	Disease progression occurred in 86.2% of those in the ASG group (adjuvant subgroup); 20% die from disease. Median 10-year survival for those who forgo surgery is 69.5%; Observed survival for this group was 36.4% at a median follow-up of 33 months. Alternative therapies used as primary treatment for Ca mammae are associated with disease progression and increased risk of recurrence and death. The reduced outcomes were more profound in those who delayed/omitted surgery.
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RESEARCH METHODS

Place and Time of Research

The research was conducted in the city of Surakarta, in the Ca Mammae Lovely Pink Surakarta survivor community and Dr Moewardi Hospital Surakarta. This research began when ethical clearance was approved January 2025

Research materials and tools

This research uses data from Ca mammae patients who are members of the Surakarta lovely pink Ca survivors

Research instruments:

- Approval after explanation
- Data collection sheet

Research Subjects

Research subjects were taken from the population of Ca mammae patients seeking treatment at Surakarta Oncology Surgery. The method for the number of research subjects is carried out according to the method of consecutive sampling.

Target Population

All patients had been diagnosed with Ca mammae disease from anamnesis, physical examination, and clinical pathology examination, who have previously undergone alternative treatment.

Reachable Population

All patients who have been diagnosed with Ca mammae disease, and have a history of alternative treatment will seek treatment at the Surgical Oncology Department in Surakarta in 2022-2024.

Sample Size

This study aims to look for factors that influence alternative treatments to delay diagnosis of mammary ca in the city of Surakarta, therefore to calculate the sample using unpaired categorical comparative analysis:

$$n = \frac{(Z\alpha \sqrt{2PQ} + Z\beta \sqrt{P_1Q_1 + P_2Q_2})^2}{(P_1 - P_2)^2}$$

$Z\alpha$ = Type 1 error is determined at 5% then

WITH = 1.96

$Z\beta$ = Type 2 error is determined at 20% then

WITH = 0.84

$P = 1/2 (P_1 + P_2)$

P_1 = proportion of effects studied

P_2 = standard effect proportion (control group)

Thus, the required sample size is 200 patients.

Inclusion Criteria

- All patients in the Surgical Oncology Department who have been diagnosed with Ca mammae based on anatomical pathology examination.
- History of treatment with alternative medicine.

Exclusion Criteria

1. Patients with other malignancies
2. Patients with incomplete medical records.

Research Design

This research is a descriptive study with a questionnaire data collection method with the source of the data obtained being primary data taken from questionnaire interviews of Ca mammae patients who underwent alternative treatment.

Sampling

The sample in this study is data that meets the inclusion criteria, the sample was taken randomly from all Ca mammae patients who had undergone alternative treatment before receiving medical treatment at the Surakarta oncology surgery and were members of the Surakarta Lovely Pink Solo regional Ca mammae survivor community for the period January – February 2025.

Operational Definition

1. Dependent variable: Delay in diagnosing Ca mammae

a. Definition : Delay in diagnosing Ca mammae is that the patient's condition is assessed based on the stage when the patient arrives at the health facility, divided into: early stage (stage I and II) and late stage (stage III and IV). Patients are said to experience delayed diagnosis when they come with stage III and IV.

b. Measuring instrument: Interview and filling out questionnaires

c. Scale: Dichotomous nominal

2. Research Independent Variables

These variables include:

- a. Age

Age is the length of time lived or existed since birth in years. Measurement scale with a numerical scale. Data was obtained through interviews and filling out questionnaires.

- b. Level of education

In this study, educational levels were differentiated into no school, elementary school, middle school, high school, D3/bachelor's degree, and master's/doctoral degree. Measurement scale with an ordinal scale. Data was obtained through interviews and filling out questionnaires.

- c. Knowledge of Ca mammae

In this study, knowledge about Ca mammae disease was differentiated on a scale of not knowing, knowing a little, understanding and understanding. The measurement scale is with a nominal scale. Data was obtained through interviews and filling out questionnaires.

- d. Distance from hospital

Distance from the hospital is the distance traveled by land measured from the patient's house to Dr. Moewardi in kilometers. Measurement scale with a numerical scale. Data was obtained through interviews and filling out questionnaires.

- e. Types of Treatment

Type of treatment is a type of alternative treatment service that the patient chooses before starting medical treatment. Measurement scale with a numerical scale. Data was obtained through interviews and filling out questionnaires.

- f. Income

Income is the patient's monthly income earned by the patient. The measurement scale is with a nominal scale. Data was obtained through interviews and filling out questionnaires.

Observed Variables

The variables used in this research are:

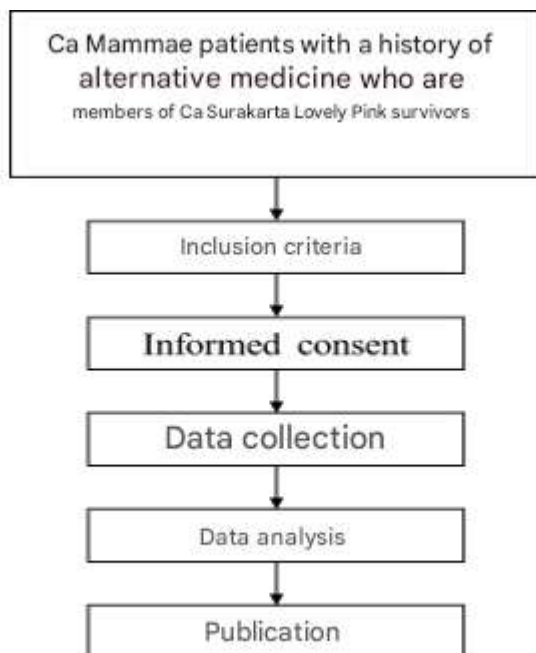
1. Age
2. Education
3. Work
4. Types of Treatment
5. Income
6. Distance

7. Knowledge

Statistical Analysis

The data that has been collected will be analyzed using SPSS computer software. Numerical data will be presented in the form of frequency distribution and percentage. Nominal and ordinal categorical data will be tested using tests contingency coefficient correlation. The results of the bivariate analysis of factors with a P value <0.25 were included in the multivariate analysis with logistic regression. The p value is significant if $P < 0.05$. The collected data will be processed using a program SPSS for windows ver. 25.0.

Research Flow



Research Ethics

This research was requested ethical clearance from RSUD Dr. Moewardi. Each research subject (or their guardian) is given an oral and written explanation regarding the purpose of the research, benefits of the research, and research procedures, after which the research subject (or their guardian) is asked for their written consent to be willing to take part in the research (attached form). All data and identity used will be kept confidential.

RESULT AND DISCUSSION

a. Result

Description of Basic Characteristics of Subjects Suffering from Mammary Ca Who Undergo Alternative Treatment

This research involved 200 Ca Mammae sufferers who underwent alternative treatment obtained from medical records at the oncology surgery RSDM and at the Surakarta Lovely Pink Solo Regional Breast Cancer Survivors Community Hospital for the period 2022-2023.

Most of the Ca Mammae sufferers who underwent alternative treatment were aged >50 years, namely 56.0%, then the rest were aged <50 years, namely 44.0%, the education level of the majority was in the tertiary and high school education categories, namely 49.0% and 81.5%. The type of alternative treatment that is often used is herbal concoctions, namely 65.5%. In this study, it was found that the majority of subjects did not work, namely 52.0%, the family income was mostly 1 million - 3 million and 3 million - 5 million, namely 36.0% and 31.5%. The distance to the treatment place is mostly 5-10 km, namely 39.0% and 11-20 km, namely 37.0%. Knowledge about breast cancer is mostly in the good category, namely 58.5%, most of the diagnosis results are in the late stage category, namely 82.5%.

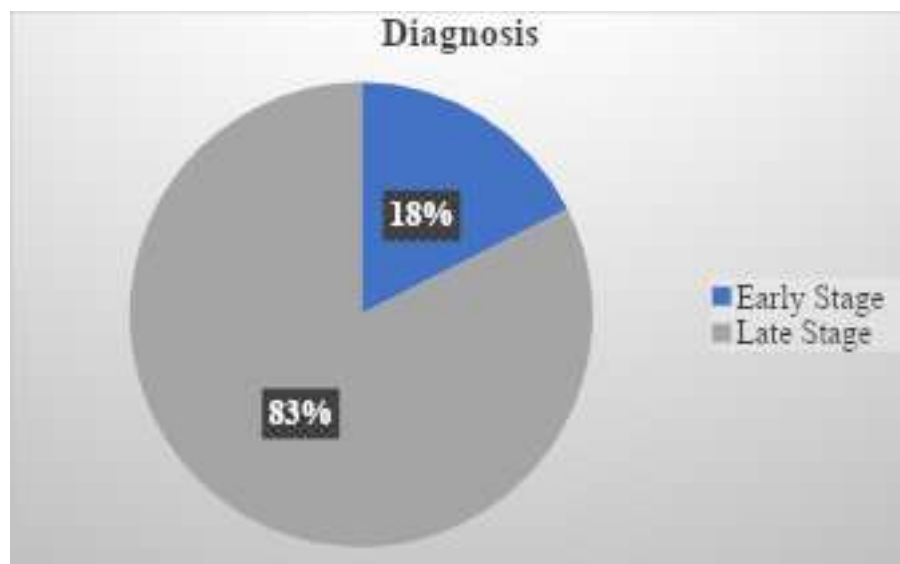


Figure 1 Prevalence of Delay in Handling Ca Mammary in Patients Undergoing Alternative Medicine

Ca Mammæ sufferers use alternative medicine mostly because family or friends recommend it (55.5%), and their socio-economic role in using alternative medicine is mostly very supportive (60.0%).

Validity and Reliability Test Results of the Indonesian Language Knowledge Questionnaire Construct in Ca mammae Patients

Test validity with correlation test, pearson product-moment moment and reliability using Cronbach's Alpha. The validity test uses the answers of 200 respondents as valid validity, and the r coefficient value is calculated for each question, so that the question is declared valid if $r \geq 0.116$ (r table; $n=200$), and reliable if Cronbach's Alpha > 0.7 . The following is a table of test results for the validity and reliability of the questionnaire.

Table 2 Results of Construct Validity and Reliability Tests of the Indonesian Language Knowledge Questionnaire for Ca mammae Patients

Question Items	Validity				Reliability		
	r-count	r-table	p-value	Information	Cronbach's Alpha	Reference	Information
Question 1	0.630	0.116	0.000	Valid	0.877	>0.700	Reliable
Question 2	0.564	0.116	0.000	Valid			
Question 3	0.591	0.116	0.000	Valid			
Question 4	0.549	0.116	0.000	Valid			
Question 5	0.592	0.116	0.000	Valid			
Question 6	0.525	0.116	0.000	Valid			
Question 7	0.608	0.116	0.000	Valid			
Question 8	0.597	0.116	0.000	Valid			
Question 9	0.595	0.116	0.000	Valid			
Question 10	0.659	0.116	0.000	Valid			
Question 11	0.507	0.116	0.000	Valid			
Question 12	0.660	0.116	0.000	Valid			
Question 13	0.545	0.116	0.000	Valid			
Question 14	0.566	0.116	0.000	Valid			
Question 15	0.553	0.116	0.000	Valid			
Question 16	0.629	0.116	0.000	Valid			
Question 17	0.507	0.116	0.000	Valid			

Table 4.3 above shows the analysis of validity test data for the questionnaire questions. it was found that the calculated r value for questions 1-17 was between 0.507-0.660. The validity test results showed that

the 17 questionnaire questions had $r \geq 0.116$ so that the 23 questionnaire questions were declared valid. The reliability results obtained were $0.877 > 0.700$, which means that this research questionnaire is reliable, thus Knowledge Questionnaire in Indonesian language in Ca mamae patients has been valid and reliable.

Correlation Analysis of Factors Associated with Delays in Treatment of Mammary Ca in Patients Undergoing Alternative Medicine

Correlation analysis of factors related to delays in handling mammary causation using alternative treatment using the contingency coefficient correlation test because the dependent variable data is in the form of nominal data (diagnosis) while the independent variable is in the form of ordinal categorical data (education, income, and distance) and nominal (age, employment, and knowledge) with the following results.

Table 3 Correlation Analysis of Factors Associated with Delays in Treatment of Mammary Ca in Patients Undergoing Alternative Treatment

Variable	Diagnosis				r	P
	Early Stage n=35		Late Stage n=165			
	n	%	n	%		
Age					0.271	<0.001*
<50 years	26	29.5%	62	70.5%		
>50 years	9	8.0%	103	92.0%		
Education					0.087	0.673
SD	1	25.0%	3	75.0%		
JUNIOR HIGH SCHOOL	3	17.6%	14	82.4%		
SMA	17	21.0%	64	79.0%		
PT	14	14.3%	84	85.7%		
Work					0.058	0.413
Work	19	19.8%	77	80.2%		
Doesn't work	16	15.4%	88	84.6%		
Alternative Type					0.220	0.017*
spiritual medicine (Healer)	0	0.0%	12	100.0%		
Massage or traditional therapy	5	41.7%	7	58.3%		
Herbal concoction	26	19.8%	105	80.2%		
Other	4	8.9%	41	91.1%		
Income					0.095	0.614
< 1 million	4	14.3%	24	85.7%		
1 million- 3 million	16	22.2%	56	77.8%		
3 million - 5 million	9	14.3%	54	85.7%		
>5 million	6	16.2%	31	83.8%		
Distance to treatment location					0.137	0.146
<5 km	7	14.6%	41	85.4%		
5-10 km	10	12.8%	68	87.2%		
11-20 km	18	24.3%	56	75.7%		
Knowledge					0.247	<0.001*
Good	30	25.6%	87	74.4%		
Bad	5	6.0%	78	94.0%		

Note: r= correlation contingency coefficient * is significantly associated with a p value <0.05

Factors that were significantly related to delays in treating mammary cassava in patients who underwent alternative medicine were age ($r=0.271$; $p<0.001$), type of alternative treatment ($r=0.220$; $p=0.017$), and level of knowledge ($r=0.247$; $p<0.001$) with a value of $p<0.05$, where patients who experienced delays in treating mammary cassava (Late Stage) tended to be >50 years old, then the type of spiritual medicine treatment (Tabib) and others, then with a poor level of knowledge. Meanwhile, the Early Stage tends to be <50 years old, then the type of treatment is massage or traditional therapy and herbal concoctions, and the level of knowledge about cancer is in the good category. The strength of the correlation between age,

type of alternative treatment, and level of knowledge regarding delays in treating mammary ca in this study is in the weak category ($r=0.200-0.400$).

In this study, the variables Education ($r=0.087$; $p=0.673$), Occupation ($r=0.058$; $p=0.413$), Distance to the treatment location ($r=0.137$; $p=0.416$) were not significantly related to delays in treating mammary cassava in patients who received alternative treatment with a value of $p>0.05$.

Multivariate Analysis of Factors Associated with Delay in Treatment of Mammary Ca in Those Using Alternative Medicine

Multivariate analysis of factors associated with delayed treatment of mammary causation using alternative treatment using a logistic regression correlation test because the dependent variable data is nominal data (diagnosis). The results of the bivariate analysis of factors with a p value <0.25 were included in the multivariate analysis, namely age, type of alternative treatment, distance and level of knowledge with the following results:

Table 4 Analysis of Factors Associated with Delays in Treatment of Mammary Ca Who Undergo Alternative Medicine

Variable	Bivariate				Multivariate			
	OR	95% C.I		p-value	Adj OR	95% C.I		p-value
		Lower	Upper			Lower	Upper	
Age > 50 years	4.799	2.112	10.906	<0.001*	4.590	1.938	10.872	0.001*
Spiritual Medicine (healer)	1.179	0.724	1.918	0.508	-	-	-	-
Distance 5-10km	0.676	0.412	1.110	0.122	0.788	0.464	1.337	0.337
Bad Knowledge	5.379	1.989	14.547	0.001*	5.708	2.048	15.913	0.001*

Note: OR= odd ratio; Adj= Adjusted (considered with other variables); CI= Confidence interval; * is significantly associated with a p value <0.05

Based on table 4.5, in the bivariate analysis, age (OR=4.799; $p=<0.001$) and knowledge (OR=5.379; $p=0.001$) were significantly related to delays in treating mammary glands in patients who received alternative treatment with a value of $p<0.05$, then in the multivariate analysis, age > 50 years (Adj OR=4.590; $p=0.001$) and poor knowledge (Adj OR = 5.708; $p = 0.001$) is significantly related to delays in treating mammary ca. Thus, age and knowledge about breast cancer are the dominant variables that have a significant relationship to delays in treating mammary cassava in patients who undergo alternative treatment.

Thus, the hypothesis that there is a relationship between age and delays in handling mammary ca in patients who received alternative treatment in the city of Surakarta in this study was proven.

b. DISCUSSION

This research involved 200 Ca Mammary sufferers in Surakarta City who chose alternative treatment before receiving medical treatment. The majority of patients were over 55 years old (56%) and had a minimum education level of high school (89.5%). Most patients do not work (52%) and have an income of between 1-5 million rupiah per month. The most widely used type of alternative medicine is herbal concoctions (65.5%), followed by other methods such as spiritual therapy, massage and other traditional treatments. The distance between patients and health facilities varies, with the majority living within a radius of 5–20 km. Most patients (82.5%) only received a diagnosis of Ca Mammary at an advanced stage (late stage), which indicates a delay in treating the disease.

The main factors that were significantly associated with delayed diagnosis were age (> 50 years), the type of alternative treatment chosen, and the patient's level of knowledge about Ca mammae. Patients who used spiritual medicine tended to experience greater delays than those who used massage therapy or herbal concoctions. The level of patient knowledge about Ca Mammary also plays an important role, where patients with poor understanding have a higher risk of experiencing delays in treatment.

The results of the multivariate analysis showed that the most dominant factors in delay in diagnosis were the patient's age and level of knowledge. Patients over 50 years old have a 4.59 times greater risk of experiencing delays than those who are younger. Meanwhile, patients with a low level of knowledge have a delay risk of up to 5,708 times greater than patients who have a good understanding. Other variables such as education level, employment, income, and distance to health facilities did not show a significant

relationship to delay in diagnosis.

Social and Economic Factors in the Choice of Alternative Treatment

Based on data obtained from questionnaires, the majority of Ca Mammary sufferers who chose alternative treatment did so because they were advised by family or friends (55.5%), indicating that social factors have a big influence in the patient's decision not to immediately undergo medical treatment. Another significant reason was the other category (30.5%), which could include personal experiences, cultural beliefs, or fear of medical procedures. Meanwhile, economic reasons, such as lower costs, were only a factor for 13% of patients, and distrust of medical treatment was only found in 1% of patients. This shows that economic barriers are not the main factor in the decision to choose alternative treatment, but are more influenced by social factors.

Apart from personal reasons for choosing alternative medicine, social and economic support also plays an important role. As many as 60% of patients felt that their socio-economic conditions strongly supported their decision to undergo alternative treatment, while 31% felt moderately supported, 7% felt only slightly supported, and only 2% felt they received no support at all. These findings show that most patients receive encouragement from the family, community, or social environment in choosing alternative treatments, which in turn can prolong their delay in seeking appropriate medical treatment. Thus, educational interventions to increase understanding of the importance of timely medical treatment need not only be aimed at patients, but also at their families and social environment, in order to reduce delays in mammary Ca treatment.

Social and economic factors play a significant role in Ca mammae patients' decisions to choose alternative treatments before seeking conventional medical care. Many patients, especially in developing countries, prefer alternative therapies due to financial reasons, lack of access to healthcare facilities, and cultural and social influences in their communities (Christina et al., 2024). Phenomenological studies conducted in Indonesia show that financial limitations, access to distant hospitals, and social pressure from family or community are the main factors that encourage patients to choose alternative therapies such as herbal medicine, spiritual therapy, and other traditional techniques (Christina et al., 2024). In addition, the belief that alternative treatments are safer compared to the side effects of chemotherapy or radiotherapy is also the main reason in patient decision making (Behzadmehr et al., 2020; Dilaveri et al., 2020).

Another study found that patients with lower socioeconomic status tended to use alternative therapies longer before finally seeking medical treatment. For example, in research in Nigeria, 48.9% of patients who experienced delays in seeking medical care were found to have used alternative therapies first due to economic constraints and belief in non-medical healing methods (Eriba and Agbonrofo, 2020). Similar things were also found in research in China, where patients from rural areas experienced more delays in getting a diagnosis due to ignorance about the symptoms of Ca mammae and limited financial resources to access adequate health facilities (An et al., 2023). Economic factors are also closely related to the patient's level of education, where individuals with lower education tend to understand less about the importance of early detection of Ca mammae and are more susceptible to the influence of inaccurate information regarding the effectiveness of alternative treatments (Yulianarista and Suarya, 2020).

Delay in Diagnosis and Ca Mammary Staging when Patients Get Treatment

Based on the data in this study, there is a delay in diagnosis Ca Mammae contributing significantly to the high proportion of patients diagnosed in the category late stage (82.5%) compared to early stage (17.5%). Of the various factors analyzed, there are several variables that have a significant relationship with delay in diagnosis, namely age, type of alternative treatment chosen, and the patient's level of knowledge about Ca mammae.

The age factor shows a strong association with late diagnosis, where patients over 45 years of age have a higher probability of being diagnosed late stage (89.4%) compared with younger patients (61.2%) ($r = 0.304$; $p < 0.001$). This can be caused by low awareness of early detection, as well as the perception that lumps or early symptoms do not require immediate medical attention.

In addition, the type of alternative treatment chosen also plays a role in the delay in diagnosis. Patients who choose spiritual medicine (healers) have a proportion late stage which reaches 100%, while patients who choose massage or traditional therapy have a greater chance of being diagnosed earlier (early stage 41.7%; late stage 58.3%). The use of the most widely used herbal concoction (65.5% of the total study subjects) was also associated with a delay in diagnosis (late stage 80.2%), although not as high as in the group who chose spiritual methods. This suggests that certain alternative treatment options, especially those that are not medically or scientifically based, contribute to patient delays in seeking appropriate medical care.

The level of patient knowledge is also a variable that has a strong influence on delays in diagnosis ($r = 0.247$; $p < 0.001$). Patients with poor understanding of Ca mammae are more likely to be diagnosed internally late stage (94.0%), while those who have good knowledge tend to seek medical treatment more quickly (early stage 25.6%). This low level of health literacy can prevent patients from recognizing the early signs of Ca mammae and reduce the urgency of having an early medical examination.

Delays in the diagnosis of Ca mammae are one of the main factors that cause patients to present at an advanced stage when they first receive medical treatment. Research shows that the majority of patients who experience delays in seeking medical treatment have a higher chance of being diagnosed in stage III or IV (Seenu et al., 2024). A study conducted in India found that more than 80% of patients who experienced a delay of more than three months after the appearance of initial symptoms were ultimately diagnosed at an advanced stage. The use of alternative medicine also contributes to delays in diagnosis, where 89.67% of patients who use alternative therapy first end up presenting at an advanced stage when seeking medical treatment (Wang et al., 2022; They enter et al., 2024).

In addition, cultural and psychosocial factors also play a role in delays in diagnosis. A study in China found that many patients were reluctant to seek medical treatment due to social stigma against Ca, fear of medical procedures, and lack of family support in medical decision making (An et al., 2023). A similar study in Nigeria reported that more than 70% of Ca mammae patients were diagnosed in advanced stages due to delays in seeking treatment caused by fear of medical procedures such as mastectomy as well as financial factors (Olaogun et al., 2024). In addition, lack of access to health facilities in rural areas also exacerbates delays in diagnosis and treatment, so that patients are more likely to present in serious condition (Eriba and Agbonrofo, 2020).

Furthermore, health system factors can also influence delays in getting a diagnosis and treatment for Ca mammae. Studies in Yogyakarta show that the limited referral system and ineffective BPJS financing policies are one of the reasons why patients experience delays in receiving follow-up care (Soimah and Istiyati, 2024). This suggests that in addition to individual and social factors, structural factors in the health system also need to be improved to reduce delays in diagnosis and improve the prognosis of patients with Ca mammae.

Overall, there is a delay in diagnosis in patients Ca Mammae mainly influenced by older age, the use of alternative medicine that is less medically based, and a low level of knowledge about Ca mammae. Thus, efforts to increase early detection should be focused on broader health education, especially for the age group over 50 years, as well as education about the dangers of late diagnosis for those who tend to choose alternative treatment.

Correlation of Factors with Delay in Treatment of Mammary Ca

Based on multivariate analysis using logistic regression, it was found that factors had a significant relationship with delay in treatment Ca Mammae is the patient's age and level of knowledge about Ca mammae. Other variables such as type of alternative treatment and distance to medical facilities did not show a statistically significant relationship to treatment delays.

The age factor has a strong relationship with delays in treatment, where patients aged more than 50 years have a 4.590 times greater risk of experiencing delays compared to younger patients ($p < 0.001$). These findings show that the older the patient, the more likely they are to receive a diagnosis at an advanced stage (late stage). This can be caused by low awareness of the importance of early detection, limited access to information, or the perception that the symptoms that appear are not something serious.

In addition, the level of knowledge about Ca mammae was also a significant factor, with patients who had poor knowledge having a 5.708 times greater risk of experiencing delays in treatment than those who had good understanding ($p = 0.001$). This suggests that insufficient understanding of the symptoms and consequences of delayed treatment may be a major barrier to seeking early medical attention. Patients with low health literacy are less likely to recognize signs of Ca mammae early or are even more easily swayed by suggestions to try alternative treatments before turning to medical services.

Meanwhile, the type of alternative treatment used was related to delay in bivariate analysis, but in multivariate analysis, this relationship was no longer significant ($p = 0.378$). This indicates that the choice of alternative method may be more influenced by the patient's age and level of knowledge, so that its effect on delay becomes less dominant when other variables are taken into account simultaneously. Distance to medical facilities was also not shown to have a significant effect ($p = 0.267$), indicating that although geographic factors can be a barrier in some cases, the main factors for delay are more related to individual aspects, such as age and the patient's understanding of the disease.

Thus, two main factors have been shown to play a role in delays in treatment Ca Mammae are older age

and lower level of knowledge. The most effective intervention efforts should be focused on more comprehensive health education, especially for the elderly group who are more vulnerable to delays in diagnosis. In addition, increasing awareness regarding the importance of early detection must be a priority, both through public health campaigns and educational programs aimed at high-risk groups.

Delay in handling Ca Mamae is influenced by various interrelated factors, both from the individual patient and the health system. Studies show that this delay is often related to economic, social, and psychological factors, as well as accessibility to health facilities (Nublah et al., 2022). One of the main contributing factors is the use of alternative medicine before seeking medical care. Patients who first undergo alternative therapy have an 11 times higher risk of experiencing delays in diagnosis and treatment compared with those who seek medical care immediately (Nublah et al., 2022). Belief in the effectiveness of traditional medicine, fear of medical procedures such as chemotherapy or surgery, and social influence from family and community are the main reasons why patients choose this method (Yulianarista and Suarya, 2020).

Apart from that, economic factors also play a significant role in delays in treatment. Patients from lower economic groups are more likely to delay treatment due to financial limitations, both in terms of consultation fees, treatment, and transportation to health facilities (Rathomi et al., 2018). A study conducted in Nigeria showed that 24.2% of patients postponed treatment due to cost constraints, while another 48.9% chose alternative treatment before finally turning to conventional medical services (Eriba and Agbonrofo, 2020). Similar things were also found in research in Indonesia, where patients with economic limitations experienced more delays in accessing health services, even though the National Health Insurance (JKN) program was available (Rathomi et al., 2018). Even though the JKN program aims to increase access to health services, some patients still experience obstacles in utilizing them due to a lack of understanding of administrative procedures and limited coverage of certain medical costs (Soimah and Istiyati, 2024).

Psychological factors such as fear of Ca and treatment procedures also contribute to delays in diagnosis and therapy. Patients who experience high anxiety about the side effects of chemotherapy or the possibility of mammary loss due to mastectomy tend to delay treatment longer than those who have a better understanding of mammary Ca therapy. A study conducted at a referral hospital in Indonesia found that patients who had a high fear of medical procedures were more likely to seek alternative treatment first, which resulted in delays in starting effective medical therapy (Nublah et al., 2022).

Apart from economic and psychological factors, the accessibility of health services is also an important factor influencing delays in treatment. Patients who live in rural areas or far from health centers have limitations in getting timely medical services (Nublah et al., 2022). A study in China showed that patients from areas with limited access to referral hospitals had a higher likelihood of being diagnosed in an advanced stage compared with those living in urban areas with more complete medical facilities (Wang et al., 2022; An et al., 2023). In Indonesia, the referral system is not yet optimal and the limited number of Ca specialist medical personnel is also a challenge in speeding up the diagnosis and treatment of patients Ca Mamae (Soimah and Istiyati, 2024).

Overall, delays in treating Mammary Ca are the result of the interaction of various factors, both originating from the patient themselves and from the health service system. Therefore, efforts to overcome this problem must include a multidisciplinary approach that includes patient education, the provision of more accessible health services, and policies that support optimal financing of Ca mammae treatment.

Correlation of factors with delays in mammary causation treatment. Types of alternative treatment chosen and the impact of late diagnosis

Based on research results, the majority of sufferers Ca Mamae who chose alternative treatment using herbal concoctions (65.5%), followed by other methods such as spiritual treatment by healers (6.0%), massage or traditional therapy (6.0%), and other forms of treatment (22.5%). The type of alternative treatment chosen by the patient shows a correlation with the Ca stage when the diagnosis is made, which ultimately influences the patient's medical outcome.

Patients who chose spiritual medicine (healers) had the highest rate of delay in treatment, with 100% of them diagnosed at an advanced stage (late stage). This shows that spiritual methods do not provide real medical benefits in controlling or improving the condition of Ca mammae, so that patients who depend on these methods tend to experience faster disease progression before finally seeking medical help. Meanwhile, patients who choose massage or traditional therapy have a greater chance of being diagnosed deep early stage (41.7%), compared to other alternative methods. This may be because this therapy is

sometimes used as a complement and not as a total replacement for medical treatment, so patients still have a greater chance of getting an early diagnosis.

In the group of herbal concoction users, even though this type of treatment was the most frequently chosen, 80.2% of patients were still diagnosed as deep late stage. This suggests that although some herbal remedies may be used to reduce symptoms, their use as primary treatment is not effective in inhibiting the development of Ca mammae. Belief in the efficacy of herbal ingredients that are not scientifically proven can cause patients to delay seeking more effective medical treatment.

Multivariate analysis showed that the type of alternative treatment did have an association with delay in diagnosis in bivariate analysis, but was not proven to be a dominant factor in delay in treatment ($p = 0.378$). This suggests that the choice of alternative treatment may be more influenced by other factors such as the patient's age and level of knowledge. Thus, although the choice of alternative treatment can contribute to delays in treatment, other factors such as low health literacy and lack of awareness of early detection have a greater role in determining patient medical outcomes.

Seeing its impact on medical outcomes, the use of alternative medicine without appropriate medical treatment has a high risk of worsening the patient's prognosis. Therefore, wider education is needed regarding the importance of early detection and evidence-based medical treatment, especially for patients who are more vulnerable to choosing alternative treatment methods as the main treatment. Integrating educational approaches with the Ca sufferer community and increasing access to medical-based information can be an effective strategy in reducing treatment delays and improving patient clinical outcomes Ca Mamae.

Selection of alternative treatments before seeking medical care is a major factor contributing to delays in diagnosis and treatment of Ca mammae. Studies show that patients who use alternative medicine before seeking medical care are 11 times more likely to experience a delay in diagnosis compared to those who seek medical treatment immediately (Nublah et al., 2022). The most frequently chosen types of alternative therapy include herbal therapy, spiritual medicine, acupuncture, and other traditional methods (Behzadmehr et al., 2020).

The impact of delays due to the use of alternative therapies can worsen the patient's prognosis. Studies in Indonesia and Nigeria found that more than 70% of patients who first used alternative therapies presented in advanced stages (stage III/IV) when they finally sought medical treatment (Eriba and Agbonrofo, 2020; Olaogun et al., 2024). This shows that although some patients feel they gain subjective benefits from alternative therapies, there is no scientific evidence to suggest that these methods can replace standard medical therapies such as chemotherapy, surgery, or radiotherapy (Nublah et al., 2022).

Patient Knowledge Level about Mammary Ca and Its Influence on Treatment Decisions

The level of patient knowledge regarding Ca Mammary has a significant influence on the treatment decisions they make. Based on the research results, 58.5% of patients had good knowledge about Ca mammae, while the other 41.5% had poor understanding. These data show that although the majority of patients have sufficient understanding of their disease, there is still a large proportion who lack understanding of the symptoms, risks and the importance of early detection and appropriate medical treatment.

Further analysis showed that the patient's level of knowledge was significantly related to the stage of the disease when the diagnosis was made. Patients with poor understanding of Ca Mammary were more often diagnosed in the late stage (94.0%), while those who had good knowledge tended to be more often diagnosed in the early stage (25.6%) ($r = 0.247$; $p < 0.001$). This shows that low health literacy can cause patients not to immediately seek medical help when experiencing initial symptoms, resulting in increased delays in diagnosis and treatment.

The level of knowledge is also related to the patient's tendency to choose alternative treatment. Patients with poor knowledge are more likely to believe in the effectiveness of non-medical treatment methods such as herbal concoctions, spiritual therapy, or traditional massage compared to patients who have better understanding. Low awareness of the importance of medical-based therapy causes patients to postpone visits to health facilities until their symptoms become worse, so that they only receive a diagnosis when their condition is more advanced.

In multivariate analysis, the level of knowledge was the dominant factor in delaying treatment with an odds ratio (OR) value of 5.708 ($p = 0.001$), indicating that patients with low understanding had more than six times the risk of experiencing delays in receiving appropriate treatment compared to those who had good knowledge. These findings confirm that health literacy is a crucial aspect in determining treatment decisions and patient prognosis.

Thus, broader educational efforts are needed to increase patient understanding regarding Ca mammae, especially regarding the importance of early detection and evidence-based medical treatment. Health campaigns, community education, and the use of social media as a means of information can be effective strategies in increasing public awareness. In addition, the involvement of medical personnel in providing more intensive education to high-risk groups can help reduce delays in diagnosis and increase the success rate of Ca mammae therapy.

The patient's level of knowledge about Ca mammae has a significant influence on their decision to seek treatment. Studies show that patients with a higher level of education tend to seek medical care more quickly after discovering early symptoms of Ca mammae, whereas those with a lower level of education more often experience delays in diagnosis (Rathomi et al., 2018). Lack of understanding regarding the importance of early detection and the side effects of delaying treatment causes many patients to delay seeking medical services, especially in areas with limited access to health information (Yulianarista and Suarya, 2020).

In some regions, myths and misinformation regarding Ca mammae are also a major factor in delayed diagnosis. Some patients believe that Ca mammae only occurs in women who are older or have a family history, so they do not realize that all women are at risk of developing this disease (An et al., 2023). In addition, fear of treatment procedures such as chemotherapy and mastectomy often causes patients to delay diagnosis until their condition worsens (Nublah et al., 2022). Therefore, targeted educational programs to increase public awareness about Ca mammae are urgently needed to reduce delays in diagnosis and improve patient prognosis.

Socioeconomic Factors in Treatment Delays

Socioeconomic factors are often one of the main considerations in making decisions regarding treatment. Based on the research results, the majority of Ca Mammae patients who chose alternative treatment came from groups with middle incomes, namely between 1 million to 3 million rupiah (36.0%) and 3 million to 5 million rupiah (31.5%). Meanwhile, only 14.0% of patients had an income of less than 1 million rupiah, and 18.5% had an income of more than 5 million rupiah. These data suggest that economic limitations may play a role in the decision to choose alternative treatment, but are not the only major factor.

In bivariate analysis, socio-economic factors such as education level, employment and income did not show a significant relationship with delayed treatment of mammary causation. For example, the education variable was not significantly related to late diagnosis ($r = 0.087$; $p = 0.673$), nor was employment ($r = 0.058$; $p = 0.413$) and income ($r = 0.095$; $p = 0.614$). These results indicate that although economic aspects can influence access to health services, the more dominant factors in delays in treatment are the patient's age and level of knowledge about their disease.

Meanwhile, socio-economic support turns out to be quite strong in influencing patients' decisions to undergo alternative treatment. As many as 60.0% of patients felt that their socio-economic conditions strongly supported the decision to seek alternative treatment, while 31.0% felt moderately supported, 7.0% felt only slightly supported, and only 2.0% felt they received no support at all. This shows that although economic factors do not directly influence delays in treatment, social factors in the form of family support and the surrounding environment can encourage patients to choose a particular treatment path.

Apart from that, delays in diagnosis are also often associated with social factors such as family support and the surrounding environment. Patients who have good social support are more likely to seek medical care early, while those who experience social pressure or stigma related to their illness are more likely to delay treatment (Hussein et al., 2021). Studies conducted at referral hospitals in Indonesia show that patients with low economic backgrounds and limited educational levels have a greater tendency to choose alternative treatments first, which ultimately worsens their medical outcomes (Nublah et al., 2022).

To overcome this challenge, more effective policies are needed to increase access to health services for patients with economic limitations. Providing free screening services, public education, and increasing coverage of health insurance programs can help reduce the number of delays in diagnosis and improve the prognosis of Ca mammae patients in Indonesia (Giammarile et al., 2022).

Thus, socio-economic factors play a more important role in determining the choice of treatment method than directly causing delays in treatment. Efforts to increase awareness about the importance of medical treatment need to include community and family-based approaches, considering that many patients make decisions based on the recommendations of those closest to them. Wider education regarding the benefits of medical treatment as well as the potential risks of delayed diagnosis needs to be focused on groups with

middle and low socioeconomic levels who tend to be more vulnerable to non-medical treatment decisions.

Dominant Factors in Delay in Treatment of Mammary Ca

Based on multivariate analysis using logistic regression, the two dominant factors that were significantly associated with delays in treating mammary Ca were the patient's age and the level of knowledge about mammary Ca. These two factors have a stronger influence than other factors such as type of alternative treatment and distance to health facilities, which did not show a significant relationship in the multivariate analysis model.

The age factor was proven to be the main determinant in delays in treatment, where patients aged more than 50 years had a 4,590 times greater risk of experiencing delays in diagnosis and treatment compared to younger patients ($p < 0.001$). This indicates that the older the patient, the more likely they are to ignore initial symptoms or delay seeking medical treatment. This factor can be influenced by various aspects, including perceptions of the disease, limited access to information, and the tendency to be more accepting of advice from family or the social environment regarding treatment options.

Apart from that, the level of patient knowledge about Ca mammae was also a dominant factor with the risk of delay in treatment being 5.708 times greater in patients with poor knowledge ($p = 0.001$). Low health literacy can cause patients not to recognize the early signs of Ca Mammae, so they tend to seek alternative treatment first or postpone medical examinations until the disease is in an advanced stage. Lack of education and dissemination of inappropriate information can further worsen this condition, especially if patients rely more on information from the social environment rather than trusted medical sources.

Although in bivariate analysis the type of alternative treatment and distance to health facilities showed a relationship with delay in treatment, in multivariate analysis this relationship was not significant. This shows that the impact of these factors is smaller than the patient's age and level of knowledge. Thus, interventions aimed at reducing delays in treating Mammary Ca should focus on increasing public awareness regarding the importance of early detection and medical treatment, especially in the elderly group who are more vulnerable to experiencing delays. Educational programs that target individuals with low levels of health literacy are also a strategic step in reducing the number of delays in diagnosis and increasing the success of Ca mammae therapy.

In general, delays in treating Ca Mammary are the result of complex interactions between patient factors, the health system, and cultural aspects. Studies show that delays in diagnosis and treatment of Ca mammae significantly increase the risk of advanced stages when patients first receive medical treatment (Hilda et al., 2022).

This delay is mainly influenced by age factors, the type of alternative treatment used before seeking medical treatment, as well as the patient's level of knowledge about Ca mammae (Ho et al., 2020).

Age and Delay in Diagnosis

Age is one of the main predictors of delays in mammary Ca treatment. Population studies in Singapore show that older patients tend to experience longer delays in diagnosis compared with younger age groups (Ho et al., 2020). This can be caused by low awareness of early symptoms, physical limitations in accessing health services, as well as the tendency to consider Ca symptoms as part of the normal aging process (Tesfaw et al., 2020).

Types of Alternative Medicine and Their Impact on Medical Outcomes

Various types of alternative medicine have been used by patients before finally seeking medical treatment. The use of spiritual therapy and traditional massage often causes patients to delay medical diagnosis, thereby increasing the chances of detection at an advanced stage (Hilda et al., 2022; Seenu, 2024). In addition, the use of herbal concoctions that are believed to have healing properties often prolongs the delay in diagnosis because patients feel that their condition has improved temporarily, when in fact the disease continues to progress (Christina et al., 2024).

Patient Knowledge Level regarding Mammary Ca

Lack of understanding about Ca mammae is a major factor in delayed diagnosis. A study in Egypt found that 95% of women with delayed diagnosis had a low level of knowledge about Ca mammae and its screening methods (Hussein et al., 2021). In addition, patients who have insufficient information about the importance of early detection tend to ignore early symptoms and only seek treatment when the condition has worsened (Lameijer et al., 2021).

Research Limitations

1. Limited Subject Characteristics

This research only involved sufferers Ca Mammae in Surakarta City, so the results may not be generalizable

to a wider population or other regions with different social, economic and cultural conditions.

2. Research Design and Limitations of Causality

This study is observational with a correlational approach, so it can only show the relationship between certain factors and delays in diagnosis and treatment Ca Mammae, but cannot prove a direct causal relationship.

The influence of other factors that have not been studied in depth

Several potential factors that could contribute to delays in diagnosis, such as psychological factors (fear of medical treatment), social stigma, and health service system factors (quality of the referral system, limited health facilities) were not analyzed in depth in this study.

CONCLUSION

Based on the results of research regarding the factors associated with delays in treating Mammary Ca in patients seeking alternative treatment in Surakarta City, it was found that the majority of patients (82.5%) were diagnosed in an advanced stage (late stage), indicating that delays in seeking medical treatment are still a major problem. Further analysis revealed that the two dominant factors that were significantly associated with delay were age and patient knowledge level. Patients over 50 years old have a 4,590 times greater risk of experiencing a delay in diagnosis than those who are younger, while patients with a poor level of knowledge have a risk of delay up to 5,708 times greater than those who have a good understanding of Ca mammae.

Apart from individual factors, the use of alternative medicine is also one of the main causes of delays in treatment. Most patients chose alternative therapy in the form of herbal concoctions (65.5%), followed by spiritual medicine (6.0%) and traditional massage therapy (6.0%). The type of therapy chosen affects the Ca stage when the diagnosis is made, where all patients who use spiritual therapy (100%) are diagnosed in an advanced stage. This shows that non-medical treatment methods that are not based on scientific evidence have a high risk of causing delays in treating Ca mammae.

Furthermore, social factors play a large role in patients' decisions to choose alternative treatments, where 55.5% of patients choose this method on the recommendation of family or friends, while only 13% choose it for cost reasons. These findings indicate that economic barriers are not the main factor in delays in treatment, but rather social and cultural factors are more influential in patients' decisions not to immediately seek medical treatment. Meanwhile, geographic factors such as distance to health facilities did not show a significant relationship with delay in diagnosis, indicating that access to health services was not a major obstacle in the population studied.

Overall, this study reveals that delays in treating Ca Mammary are not only caused by individual factors such as the patient's age and knowledge, but are also influenced by social and cultural factors that encourage patients to choose alternative treatments before seeking appropriate medical care. The lack of effective education and the continued belief in treatment methods that have not been scientifically proven are the main challenges in efforts to speed up the detection and treatment of Ca mammae.

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