

ORIGINAL ARTICLE

DELAY IN MEDICAL CONSULTATION AMONG WOMEN WITH BREAST CANCER IN WESTERN INDONESIA: A CROSS-SECTIONAL STUDY

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ABSTRACT

Studies on the role of social context in understanding why breast cancer patients are diagnosed at an advanced stage in developing countries are scarce. This study described delays in medical consultation among women with breast cancer in West Sumatera Province and its related factors. A hospital-based, cross-sectional design was conducted involving 218 respondents. Multiple logistic regression analysis was performed to determine the association between early treatment practices and respondent characteristics, breast cancer knowledge, symptoms, health service utilization, and social capital. The study found that 69.7% of respondents sought health services within three months after the first signs notification. Most of those who postponed medical consultation thought their symptoms did not indicate an illness and were not harmful (48.5%). Delay in medical consultation was related to low education level (OR=4.8, 95% CI: 1.37-16.62) and lower knowledge of breast cancer (OR=2.3, 95% CI: 1.18-4.39). This study found that an increase of one unit in the social capital score resulted in an 11% (0.11) decrease in the odds of delaying medical consultation for breast cancer (95% CI: 0.19-0.02). One-third of breast cancer patients were found to have delayed medical consultation, related to lower education level, inadequate knowledge of breast cancer, and lack of social capital. Therefore, education on the importance of prompt medical consultation should reach all community members. Social capital building is needed to introduce the message of early detection and early treatment of breast cancer for community members to share.

Keywords: breast cancer, delay in breast cancer treatment, consultation delay, health service utilization, social capital, Indonesia.

INTRODUCTION

Breast cancer accounts for the highest proportion of cancer incidence and is the leading cause of death due to cancer among females worldwide. In 2012, 1.7 million new cases were diagnosed, and 522,000 deaths due to breast cancer were reported globally¹. These numbers increased to 2 million new cases and 626,679 deaths in 2018, representing 11.6% of new cancer cases and 6.6% of deaths from cancer at all sites². Approximately 685 000 women died from the disease in 2020³. The data showed that 43% of new breast cancer cases were reported in Europe and North America, while a low incidence rate of less than 39 cases per 100,000 women per year was reported in the African region^{1,4,5}. The higher incidence of breast cancer in more developed countries than in low and middle-income countries (LMIC) was in marked contrast to the pattern of breast cancer mortality. The age-standardized mortality rate due to breast cancer in high human development index (HDI) countries was 13 per 100,000 females, whereas 17.1 deaths due to breast cancer were reported per 100,000 females in low HDI countries^{6,7}.

The number of new breast cancer cases continues to grow in other regions. The incidence has increased significantly in the Asia Pacific region in

recent decades. The incidence ranges from 9 cases per 100,000 women in Mongolia to 86 per 100,000 in Australia⁸. Approximately 570,000 new cases and 196,000 deaths occurred in the Asia Pacific in 2012, representing more than a third of the global burden of breast cancer⁶. While breast cancer has become a significant health problem in high-income Asian countries such as China and Japan, the rates are increasing in Asian developing economies, including Indonesia and Thailand^{9,10}. Focusing on breast cancer in Indonesia, which has a predominantly female population, is essential since the country contributes 12% of the breast cancer cases and 17% of the breast cancer deaths in the region, with the highest rates after China and Japan⁸.

Breast cancer patients should have a favorable prognosis for long-term survival if the breast mass can be identified early and surgery can be performed promptly. Delays in breast cancer detection and treatment worsen the disease due to progressive cancer growth to higher stages with poorer chances of survival, treatment complications, and mortality¹¹⁻¹³. The lack of early detection programs explains these poor survival rates, which results in a high proportion of women presenting with late-stage disease¹⁴. So, it has been proven that early detection and treatment at the earlier stages of cancer contributed to a low breast

cancer mortality rate in developed countries, even those with a higher incidence than less developed countries¹⁵. A study reported that early breast cancer detection campaigns and early surgery effectively decreased the breast cancer case fatality rate in the United States from 0.42 in 1950 to 0.27 in 1975, representing a 36% decline¹⁵. Therefore, a delay in seeking health care by women with breast cancer in developing countries places them at risk of reaching an advanced stage of cancer at diagnosis^{9,16}. However, evidence to understand why breast cancer patients are diagnosed at an advanced stage in developing countries is scarce¹⁷. Research exploring the reasons for attitudes contributing to delays in seeking medical services among women with breast cancer must be conducted to fill in the apparent gap in the literature and allow effective public health approaches to shorten the delay and reduce preventable deaths due to breast cancer^{16,18}.

Most studies on healthcare use have focused on individual factors, and this focus has also been present in the increasing number of studies on the delay in breast cancer treatment in developing countries. At the same time, the number of studies on the role of the social context in health service use has been increasing¹⁹. However, there is a lack of literature examining the role of contextual factors beyond individual characteristics, e.g., social capital, in promoting medical consultations among breast cancer patients. In Indonesia, like other eastern developing countries, most people hold firmly to their culture and religion and are relatively conservative in their social interactions. Therefore, taking into account social capital is expected to explain more factors related to health service use, particularly delayed medical consultation by breast cancer patients in Indonesia. The link between social capital and health service use could be explained by the observation that high social capital reflects the rapid dissemination of health information and healthy behavior, social control, and the accessibility of public services²⁰.

Against this background, studies revealing the delays in medical consultation among breast cancer cases are indispensable for efforts to incorporate social relationships into public health interventions to promote timely breast cancer diagnosis and treatment tailored to local social values related to breast cancer prevention in developing countries. This study aims to describe delays in medical consultation among women with breast cancer in West Sumatera Province, Indonesia, and its related factors. The study examined sociodemographic variables, knowledge, and social capital factors to determine the factors related to delay in medical consultation for breast cancer.

METHODOLOGY

Study design and sampling

The study used a hospital-based, cross-sectional design conducted in West Sumatera Province, Indonesia. The population for whom this study results would be generalized were women with breast cancer in West Sumatera Province. A total of 218 respondents were selected, applying a simple random sampling technique from 251 patients attending surgical, oncology, and radiotherapy clinics in three top referral hospitals from July to October 2017 as the sampling frame. The three referral hospitals were selected based on criteria regarding the availability of oncologists, advanced cancer surgery, chemotherapy, and radiotherapy.

Data collection

Data were collected through face-to-face interviews using a questionnaire in the Indonesian language. Researchers developed the questionnaire, and the questions referred to the definition of variables. The questionnaire was divided into five parts: respondent characteristics, knowledge of breast cancer, breast cancer symptoms, health service utilization, and social capital. A pretest survey involving 20 respondents was conducted to check the reliability and to identify questions that were difficult for respondents to answer. The reliability was confirmed by Cronbach's alpha ($\alpha = 0.6$). Experts reviewed the questionnaire to ensure content validity.

Variables

The outcome variable in this study was the delay in medical consultation by breast cancer patients. This variable was categorized as delay or no delay, measured by the time in months from the observation of at least one breast cancer abnormality (i.e., lump in the breast, lump in the underarm area, change in breast and nipple form and size, nipple retraction, redness or thickening of the breast skin, and nipple discharge other than breast milk) by the respondent to the first time she utilized health care services for medical consultation. The outcome variable was grouped using a three-month cut-off point, where more than three months was considered delayed medical consultation and three months or less was considered no delay in medical consultation. A three-month cut-off point was employed because a three- to six-month delay in breast cancer treatment has been associated with lower survival rates^{13,21,22}. Early treatment practices were hypothesized to be associated with age, education level, economic level, working status, residential area, marital status, knowledge of breast cancer, and social capital. Education level was categorized as high or low based on the highest level of formal education attained by the respondent, with

attainment of senior high school as a cut-off point. The economic level was determined using per capita income per month. For working status, respondents were categorized as working or not working to gain household income data for the occupation variable. The place of residence was divided into urban and rural based on the city or district where the respondents lived. Knowledge of breast cancer was categorized as weak or good, measured using 26 right or wrong questions regarding breast cancer and its treatment. Correct answers were given 1 point, and incorrect answers were given 0 points. Social capital was measured using five dimensions (i.e., groups and networks, trust and solidarity, collective action and cooperation, information and communication, and social cohesion and inclusion)²³. The social capital part consisted of yes/no questions; correct responses received 1 point, and incorrect answers received 0 points.

Data analysis

The data were analyzed by using SPSS for Windows. Descriptive analysis was employed by presenting the means and standard deviations for the continuous data and the proportions for the categorical data. Univariable analyses were applied to determine the eligible variables to be entered into the multivariate analysis. The chi-square test was used to analyze categorical factors, whereas the independent Student's t-test was employed for continuous variables. Multiple logistic regression analysis was performed to determine the association between risk factor variables and early treatment practices by breast cancer patients (delay and not delay were coded as 1 and 0,

respectively). The Hosmer-Lemeshow goodness of fit test tested the fitness of the final model. The results were presented as adjusted odds ratios with 95% confidence intervals and p values less than 0.05, indicating a significant association.

RESULTS

Respondents' characteristics

A total of 218 respondents were involved in this study. Most of the respondents were married (81.7%) and had an average age of 48.7 years. The mean per capita income of the respondents' families was IDR 1,249,500, and the median per capita income per month was IDR 750,000. More than half of the respondents lived in urban areas (58.7%), most of whom were housewives. The majority (49.1%) of the respondents attended senior high school.

Table 2 shows that the frequent first signs or symptoms noticed by the respondents were a small breast mass (reported by 61% of the respondents), change in breast size (26.6%), two-to-five-centimeter breast mass (23.4%), and vary in breast shape (21.1%). Most respondents reported seeking health services immediately (within three months) after the first signs or symptoms notification (69.7%). Most of the respondents who postponed medical consultation either thought that their symptoms did not indicate an illness and were not harmful (48.5%), were scared to learn about the disease (16.8%), and did not know that their symptoms were a sign of cancer (12.1%).

Table 1: Respondents' characteristics

Characteristics	Frequency (%) / Mean (sd)
Age (year)	48.7 (10.3)
Per capita income (IDR)*	1,249,500 (1,357,510) 750,000**
Residence	
Rural	90 (41.3)
Urban	128 (58.7)
Marriage status	
Not married	40 (18.3)
Married	178 (81.7)
Formal education level	
No formal education	8 (3.7)
Primary school	28 (12.8)
Junior high school	41 (18.8)
Senior high school	107 (49.1)
College/university	34 (15.6)
Occupation	
Not working	7 (3.2)
Housewife	128 (58.7)
Government employees	39 (17.9)
Private employees	6 (2.8)
Merchant	7 (3.2)
Entrepreneur	12 (5.5)
Farmer	11 (5)
Others	8 (3.7)

* USD 1 was equivalent to IDR 13,500 (2018), ** Median per capita income per month

Table 2: First signs or symptoms noted by the respondents

The first sign or symptom	Frequency (%)
Small breast mass (less than 2 cm)	133 (61)
Breast mass (2-5 cm)	51 (23.4)
Breast mass (more than 5 cm)	15 (6.9)
Swollen lymph nodes in the underarm area	18 (8.3)
Change in breast size	58 (26.6)
Change in breast shape	46 (21.1)
Change in breast skin color	28 (12.8)
Dimpling skin	10 (4.6)
Nipple retraction	20 (9.2)
Nipple discharge (other than breastmilk)	14 (6.4)

Table 3: Health service utilization

Criteria	Frequency (%)
Sought health services within two months after first signing notification	
No	66 (30.3)
Yes	152 (69.7)
Reason for not seeking care	
Did not know that symptom was a sign of cancer	8 (12.1)
Used alternative therapy	5 (7.6)
Was scared of surgery	4 (6.0)
Had financial barriers	3 (4.5)
Thought symptom did not indicate an illness and was not harmful	32 (48.5)
Was waiting for a bigger mass	1 (1.5)
Did not have time to seek care	1 (1.5)
Was pregnant	1 (1.5)
Was scared to learn about the disease	11 (16.8)

Early treatment practices and the related factors

This study revealed that 66 of the 218 respondents (30.3%) had visited health services three months or more after identifying breast abnormalities, classified as a delay in breast cancer medical consultation. The univariable analyses found that age, residential area, marital status, and economic level were unrelated to a delay in breast cancer treatment. Furthermore, education level, working status, knowledge of breast cancer, and social capital score were entered into the binary logistic regression.

Table 5 shows the final model of binary logistic regression with a p value from the Hosmer and Lemeshow goodness of fit test of more than 0.05.

The analysis found that education level, knowledge of breast cancer, and social capital were associated with a three-month delay in breast cancer treatment. Education level was significantly associated with a delay in breast cancer. An individual with a low education level was 4.8 times (95% CI: 1.37-16.62) more likely to have a delay in medical consultation for breast cancer than a person with a high education level. Those with lower knowledge of breast cancer were 2.3 times more likely to have delayed breast cancer treatment (95% CI: 1.18-4.39) than those with higher knowledge. This study found that an increase of one unit in the social capital score resulted in an 11% (0.11) decrease in the odds of delaying medical consultation for breast cancer (95% CI: 0.19-0.02).

Table 4: Univariable analysis of a 3-month delay in seeking health services and the categorical factors

Factors	3-month delay		p value	Crude OR
	Yes	No		
Residential area				
Rural	30 (33.3)	60 (66.7)	0.41	-
Urban	36 (28.1)	92 (71.9)		
Marital status				
Not married	13 (32.5)	27 (67.5)	0.73	-
Married	53 (29.8)	125 (70.2)		
Education level				
Less than high school	63 (34.2)	121 (65.8)	0.003**	5.4 (1.6-18.3)
High school or more	3 (8.8)	31 (91.2)		
Economic level				
Lower	16 (32)	34 (68)	0.762	-
Higher	50 (29.8)	118 (70.2)		
Working status				
Not working	50 (37)	85 (63)	0.003**	2.8 (1.4-5.6)
Working	13 (17.3)	62 (82.7)		
Knowledge of breast cancer				
Lower	44 (41.9)	61 (58.1)	<0.001**	2.9 (1.6-5.5)
Higher	22 (19.5)	91 (80.5)		
Social capital				
Lower	36 (39.1)	56 (60.9)	0.011*	2.1 (1.2-3.8)
Higher	29 (23.2)	96 (76.8)		
Age (mean $\pm$ sd)	49.4 $\pm$ 11.3	48.5 $\pm$ 9.9	0.56	
Social capital score (mean $\pm$ sd)	10.7 $\pm$ 3.8	12.3 $\pm$ 2.9	0.001**	

* p value < 0.05, ** p value < 0.01

Table 5: Factors related to a 3-month delay in breast cancer treatment

Variable	Coefficient	Standard error	p value	Adjusted OR (95% CI)
Education level				
Lower	1.56	0.64	0.014*	4.76 (1.37-16.62)
Higher				1
Knowledge of breast cancer				
Low	0.82	0.33	0.014*	2.28 (1.18-4.39)
Higher				1
Social capital score	-0.112	0.05	0.022*	0.89 (0.81-0.98)

* p value < 0.05

DISCUSSION

Women presenting more advanced stages of cancer at diagnosis have become an obstacle in addressing breast cancer problems in low- and middle-income countries. Meanwhile, more than 70% of breast cancer patients are diagnosed at stage I or II in high-income countries, with the highest rates of early-stage diagnosis reported in Sweden and Norway at more than 90%; in contrast, only 20 to 60% of breast cancer patients are diagnosed at the early stage in low- and middle-income countries²⁴. This study revealed a similar pattern: a third of breast cancer patients in the study population were estimated to have delayed medical consultation after the first symptoms were noticed. The results showed lower rates of delayed medical consultation than those observed among women with breast cancer in

Malaysia (43.3%), India (48.5%), Pakistan (39%), and Nigeria (82%) but higher rates than those reported in Thailand (10.6%)^{25,26}.

Most of the respondents in this study noticed the main signs and symptoms of breast cancer. A breast mass (less than 2 cm) and changes in shape and size were among the most frequent signs reported. However, the painless nature of breast cancer mass could be a barrier to early medical consultation by patients²⁶. This study found that almost half of the respondents who postponed medical consultation thought that a small breast mass and changes in breast shape and size did not indicate an illness and were not harmful, did not know that the symptoms were signs of cancer²⁷, were scared to learn about the disease and were scared of surgery²⁸. Consistent with this study, other studies have observed that

delays in breast cancer presentation might result from shyness, a lack of pain, a perception that symptoms were not severe, and low suspicion of malignancy or worries about what the doctor might find ^{21,22,29}.

The economic level was not related to medical consultation delay, in contrast to the findings of other studies ^{17,21,30}. It has been assumed that people with low economic status are more likely to have a higher stage of breast cancer at the time of diagnosis due to a longer time lag from identifying the first symptom to seeking medical care ²¹. Socioeconomic status is the most relevant factor for health care utilization because it directly influences affordability, which is a dimension of the accessibility of medical care and refers to the price of services and a patient's ability to pay ¹⁷. The implementation of Indonesian national health insurance since 2014 has resulted in most of the respondents of this study being financially protected by health insurance any time they use health services; thus, economic level was not significantly related to delayed medical consultation.

In this study population, a lower level of formal education and knowledge of breast cancer were related to the risk of having delayed medical consultation. Similar findings have been observed in previous studies in which a lower level of education was related to presentation delay ^{18,22,31}. Prompt breast cancer treatment should be triggered by awareness of essential signs and symptoms, which should be improved by developing adequate knowledge of breast cancer. Lacking information on breast cancer, disregarding the manifestations of breast cancer, and thinking that breast abnormalities will heal spontaneously can be interpreted as consequences of a lack of knowledge and education ¹⁶. People who are highly educated may have a better understanding of the early signs of breast cancer and malignancies ^{9,32}. Social capital is related to delays in medical consultation by breast cancer patients. Low social capital means that a person cannot procure information she should gain from her social relationships within a community due to a lack of group involvement, distrust, low cooperation, inadequate communication, or low social cohesion ²³. Social capital is critical in building appropriate health behavior, including medical-seeking behavior, in such communities through improving access to health information and enhancing support in cases of illness in the community ³³. Therefore, individuals with low social capital may ignore or hide breast cancer signs and symptoms they have identified or decide to undergo alternative therapy rather than health services due to their failure to gain adequate information and support from their surroundings. It was evident from the study results that the most frequent reasons

behind the decision not to care after identification of a breast mass were related to a lack of knowledge of the signs of cancer and the harmfulness of the disease and fear of learning the diagnosis.

The findings of this study supported the related factors of delays in medical consultation by breast cancer patients that have been revealed by existing studies worldwide, particularly in low- and middle-income countries. This study relied on the respondents' self-reported times of their first medical consultation. Patients' difficulty remembering the precise time of the first medical consultation may lead to recall errors. They may have caused bias in this study, even though the respondents' recall was aided by asking them to connect the time of first identification of a breast anomaly and the first medical consultation with a religious event, national holiday, or other occasion. The study limitations included the location of the study that, only covered three top referral hospitals in West Sumatera Province and not yet revealed cultural variables that might influenced the decision-making process in breast cancer cases. Furthermore, this study suggests that further research is needed to explore effective health education to promote public knowledge and awareness of breast cancer abnormalities and the required prompt treatment. Considering the critical role of social capital, further study is also needed on social capital building and its use in providing health information and support to women with breast abnormalities in communities so they promptly seek medical consultation.

CONCLUSIONS

One-third of breast cancer patients were found to have delayed medical consultation. Delayed medical consultation was related to lower education levels, inadequate knowledge of breast cancer, and low social capital. Public health interventions to increase community knowledge regarding breast cancer and education on the importance of prompt medical consultation should reach all community members. In Indonesia, a middle-income country with particular community characteristics, including warm relationships and intensive communication, social capital building is needed to introduce the message of early detection and early treatment of breast cancer for community members to share. Finally, preventable deaths due to breast cancer could be reduced.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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