RESEARCH ARTICLE

Awareness of Breast Cancer among Surgical Patients in a Tertiary Hospital in Malaysia

Ranita Kirubakaran*, Teoh Chee Jia, Naimah Mahamad Aris

Abstract

Background: Breast cancer is the commonest cancer among women worldwide. About one in nineteen women in Malaysia are at risk, compared to one in eight in Europe and the United States. The objectives of this study were: (1) to assess patients' knowledge on risk factors, symptoms and methods of screening of breast cancer; and (2) to determine their perceptions towards the disease treatment outcomes. **Methods:** A cross-sectional survey using a validated self-administered questionnaire was conducted among 119 consecutive surgical female patients admitted from 1st of September to 8th of October 2015 in Hospital Sultan Abdul Halim, Kedah. Data were analyzed using General linear regression and Spearman's correlation with Statistical Package for Social Science (SPSS) version 20. **Results:** Mean (SD) age was 40.6 (15.1) years and majority of the patients were Malay (106, 89.1%). Mean scores for general knowledge, risk factors and symptoms of breast cancer were 50.2 (24.0%), 43.0 (22.9%) and 64.4 (28.4%) respectively. Mean total knowledge score was 52.1(19.7%). 80 (67.2%) and 55 (46.2%) patients were aware of breast self-examination and clinical breast examination recommendations, respectively. Generally, patients had positive perceptions towards breast cancer treatment outcomes. However, majority (59.7%) considered that it would be a long and painful process. Knowledge was significantly better among married women with spouses (p=0.046), those with personal history of breast cancer (p=0.022) and with monthly personal income (p=0.001) with the coefficient of determination, R^2=0.16. Spearman's correlation test showed a significant positive relationship between monthly personal income and breast cancer awareness (r = 0.343, p <0.001). **Conclusion:** Awareness on breast cancer among our patients was average. Thus, there is a need for more awareness programs to educate women about breast cancer and promote its early detection.

Keywords: Breast cancer- general knowledge- methods of screening- risk factors- symptoms

Introduction

According to World Health Organization (WHO), breast cancer is the commonest cancer among women worldwide (National Breast Cancer Foundation, 2015). It is also the principle cause of death from cancer among women globally (National Breast Cancer Foundation, 2015). About one in nineteen women in Malaysia are at risk of developing breast cancer in comparison to one in eight in Europe and the United States (Malaysian Oncology Society, 2012). According to Malaysian National Cancer Registry Report, 2016, breast cancer was commonly seen among female between the age group of 25 to 59 years old, and then declined in the older women. The overall age-standardized rate (ASR) was 31.1 per 100,000 women (Malaysian National Cancer Registry Report, 2016). The Chinese ethnic group had the highest incidence, with an ASR of 41.5 per 100,000 women followed by Indian: 37.1 and Malay: 27.2 per 100,000 women from 2007 till 2011 (Malaysian National Cancer Registry Report, 2016).

There is no definite way to prevent breast cancer but there are modifiable risk factors such as dietary intake, breast feeding, and many more which we can change to reduce our risk of developing breast cancer. Breast cancer is sometimes found after symptoms appear, but many women with breast cancer have no symptoms, enforcing why regular breast cancer screening is so important (American Cancer Society, 2017). Previous studies on breast cancer awareness among university students and women of various ethnic groups in the state of Penang, Malaysia showed majority of them had serious knowledge deficit (Hadi et al., 2010; Abdul Hadi et al., 2010). Deficit in knowledge of symptoms and risk factors are mainly the reasons for the delayed presentation of breast cancer patients to the hospital in developing countries. Thus, adequate knowledge with extensive and sustainable awareness programs in the developing countries is warranted to help instil preventive measures in the population.

Awareness of breast cancer in the state of Kedah, Malaysia is not well documented which led us to the objectives of our study which were (1) To assess patients' knowledge on risk factors, symptoms and methods of screening of breast cancer and (2) To determine their perceptions towards the disease treatment outcomes.

*Department of Pharmacy, Hospital Sultan Abdul Halim, Sungai Petani, Malaysia. *For Correspondence: ranita7784@yahoo.com*

Materials and Methods

A cross-sectional survey using a validated self-administered questionnaire was conducted among 119 consecutive surgical female patients admitted from 1st of September 2015 to 8th of October 2015 in Hospital Sultan Abdul Halim, Kedah. Questions were adapted from Hadi et al., 2010. Patients were required to answer 8 questions on socio-demographic characteristics, 4 questions on general knowledge of breast cancer, 10 questions on risk factors and 8 questions on symptoms and screening tests related to breast cancer. Also, there were 5 questions with a five point Likert type scale (from strongly agree to strongly disagree) to determine their perceptions towards breast cancer treatment outcomes. Participants were awarded one point for each correct response and zero points for each wrong or "do not know" response on items related to knowledge. The maximum score was 22, since questions on perception of the treatment outcomes were not scored. Those who were able to understand the questionnaire either in Malay or English medium were recruited. Male, age below 18 years old, those with learning disorder or disabilities and who refuse to participate were excluded from the study. Informed consent was taken from the participants prior to enrolment. Data were analyzed using General linear regression and Spearman's correlation with Statistical Package for Social Science (SPSS) version 20. The level of statistical significance was set at $p < 0.05$. The protocol of this study was registered with the National Medical Research Register and approved by Medical Research Ethics Committee, Malaysia.

Results

Mean(SD) age was 40.6(15.1) years and majority of the patients were Malay, 106(89.1%) (Table 1). Responses to all the questions are shown in Table 2. 80 (67.2%) and 55 (46.2%) patients were aware of breast self-examination and clinical breast examination recommendations, respectively (Table 2). Mean scores for general knowledge, risk factors and symptoms of breast cancer were 50.2 (24.0%), 43.0 (22.9%) and 64.4 (28.4%) respectively (Table 3). Mean total knowledge score was 52.1 (19.7%) (Table 3). Generally, patients had positive perceptions towards breast cancer treatment outcomes. However, majority (59.7%) felt that it would be a long and painful process (Table 4). Knowledge was significantly better among married women with spouses (p=0.046), those with personal history of breast cancer (p=0.022) and with monthly personal income (p=0.001) with the coefficient of determination, R^2=0.16 (Table 5). Spearman's correlation test showed a significant positive relationship between monthly personal income and breast cancer awareness (r = 0.343, p <0.001).

Discussion

Socio-demographic Distribution of Study Population

Majority of the recruited patients were below 57 years old because language barrier, illiterate and refuse to participate were the main reasons why elderly women were not recruited in our study. Majority of the patients were Malays because they are the predominant race in Kedah (Department of Statistics: Population Distribution and Basic Demographic Characteristics, 2010).

Knowledge of Breast Cancer

More than half of the patients acknowledged that only females were affected by breast cancer because they are unaware that male can also attain breast cancer as the incidence of a male suffering from breast cancer in Malaysia is low and the cumulative risk is 0.7 per 100,000 population (National Cancer Registry, 2006). Majority of the patients were unable to estimate the life time risk of developing breast cancer among Malaysian women which is one in nineteen because such prevalence is not being highlighted clearly or widely in the mass media or incorporated in the school curricula. A study among Australian women showed lacking of knowledge in the incidence and mortality rate of breast cancer and their misperceptions regarding the risk factors of breast cancer resulted in their failure to make an accurate estimation of the risk of getting breast cancer (Humpel and Jones, 2004).

Patients' knowledge on breast cancer risk factors in

Table 1. Socio-demographic Characteristics

Variables	n(%)
Age (group)	
18 - 27	32 (26.9)
28 - 37	20 (16.8)
38 - 47	28 (23.5)
48 - 57	19 (16.0)
58 - 77	20 (16.8)
Ethnicity	
Malay	106 (89.1)
Chinese	2 (1.7)
Indian	11 (9.2)
Education level	
Primary	17 (14.3)
Secondary	75 (63.0)
Tertiary	27 (22.7)
Employment status	
Working	50 (42.0)
Not working	69 (58.0)
Monthly personal income	
With income	56 (47.1)
No income	63 (52.9)
Marital status	
Married with spouse	85 (71.4)
Single/Divorcee/Widow	34 (28.6)
Family history of breast cancer	
Yes	9 (7.6)
No	110 (92.4)
Personal history of breast cancer	
Yes	14 (11.8)
No	105 (88.2)

Table 2. Responses to Questions

Item	Correct, n(%)	Incorrect/Don't know, n(%)
General knowledge		
Only females are affected by breast cancer.	41 (34.5)	78 (65.5)
Breast cancer can be transmitted from one person to another.	89 (74.8)	30 (25.2)
Breast cancer is the leading cause of cancer death in Malaysian women.	96 (80.7)	23 (19.3)
The estimated life time risk of developing breast cancer in Malaysian women is?	13 (10.9)	106 (89.1)
Knowledge of breast cancer risk factors		
Old age	62 (52.1)	57 (47.9)
Family history of breast cancer	65 (54.6)	54 (45.4)
Cigarette smoking	87 (73.1)	32 (26.9)
Low fat diet	73 (61.3)	46 (38.7)
First child birth after the age of 30 years old	55 (46.2)	64 (53.8)
Early onset of menses (Before the age of 12 years old)	15 (12.6)	104 (87.4)
Late menopause (after the age of 55 years old)	19 (16.0)	100 (84.0)
Use of oral contraceptive	41 (34.5)	78 (65.5)
Large breasts	27 (22.7)	92 (77.3)
Breastfeeding	68 (57.1)	51 (42.9)
Knowledge of breast cancer symptoms & screening tests		
Painless breast lump	75 (63.0)	44 (37.0)
Lump under armpit	88 (73.9)	31 (26.1)
Nipple discharge	75 (63.0)	44 (37.0)
Changes in breast shape	80 (67.2)	39 (32.8)
Pain in breast region	94 (79.0)	25 (21.0)
Changes in breast skin texture/appearance/colour	66 (55.5)	53 (44.5)
BSE is recommended for females once a month	80 (67.2)	39 (32.8)
CBE is recommended for females once a year	55 (46.2)	64 (53.8)

Table 3. Mean(SD) Scores of Breast Cancer Knowledge

Variables	Mean(SD)
General knowledge	50.2(24.0)
Risk factors	43.0(22.9)
Symptoms	64.4(28.4)
Total knowledge	52.1(19.7)

our study was poor and is consistent with previous studies (Grunfeld et al., 2002; Leslie et al., 2002; Oluwatosin and Oladepo, 2006; Alharbi et al., 2012). A major proportion of patients were unaware that complex risk factors such as early menarche (before the age of 12 years old), late menopause (after the age of 55 years old), oral contraceptive users and those with large breasts could

Table 4. Perception Towards Breast Cancer Treatment and its Outcomes

Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
A woman after receiving treatment for breast cancer can enjoy a good quality of life.	49 (41.2)	56 (47.1)	10 (8.4)	3 (2.5)	1 (0.8)
The treatment for breast cancer is a long and painful process.	15 (12.6)	56 (47.1)	26 (21.8)	18 (15.1)	4 (3.4)
Treatments for breast cancer are more helpful to young people.	29 (24.4)	44 (37.0)	14 (11.8)	25 (21.0)	7 (5.9)
Treatment for breast cancer is embarrassing.	3 (2.5)	7 (5.9)	14 (11.8)	72 (60.5)	23 (19.3)
Treatment of breast cancer results in loss of physical beauty.	11 (9.2)	22 (18.5)	23 (19.3)	53 (44.5)	10 (8.4)

Table 5. Factors associated with Total Knowledge Score among Study Population (n=119)

Variables	GLR[a]			
	Adj b[b]	95% CI	t-stat	p-value
Income status	11.20	(4.48,17.92)	3.30	0.001
Personal history of breast cancer	12.31	(1.81,22.81)	2.32	0.022
Marital status	7.67	(0.13,15.21)	2.02	0.046

[a]General Linear Regression (R^2= 0.16; The model reasonably fits well; Model assumption are met; There is no interaction between independent variables and no multicollinearity problem. [b], Adjusted regression coefficient.

increase their risk of getting breast cancer. Few other studies cited that their study respondents were also unable to appreciate risk factors such as early onset of menses and late menopauses were associated with breast cancer (Hadi et al., 2010; Grunfeld et al., 2002; Alharbi et al., 2012; Samah et al., 2015). Poor knowledge on breast cancer risk factors in our study population is probably due to lack of exposure from health care providers, mass media and awareness campaign on breast cancer at our local setting.

In regards to awareness of breast cancer symptoms, two-third of patients scored more than 62.5%. More than 72.0% of local female university students in Penang scored a high percentage of correct responses indicating that their knowledge of breast cancer symptoms were at a satisfactory level (Hadi et al., 2010). According to National Breast Cancer Foundation, 2015, signs and symptoms of breast cancer are based on three presentations: changes in breast appearance, changes in how the breast and nipple feels and, nipple discharges. Lacking of knowledge in manifestation of breast cancer may lead to delayed presentation of the disease and consequently, cause poor prognosis and survival rate.

Majority of the patients in our study were aware of Breast Self-Examination (BSE) which is done monthly rather than Clinical Breast Examination (CBE) which is done annually by medical or paramedical personnel. More than two-third of the university students in Hadi et al., 2010 were aware of BSE and CBE recommendations. The Malaysian Ministry of Health had organized Breast Cancer Prevention Program Health Awareness in the early twenties to promote physical examination by trained healthcare professionals as part of their secondary prevention program. It promotes annual CBE for women aged 40 years and above and once every 3 years for those aged 20 to 39 years. Other screening modalities such as BSE and mammogram for women above 50 years old were included in the program. There is evidence that CBE and mammography can reduce mortality due to early detection and treatment of breast cancer (Albayrak and Haktanir, 2005). Lacking of awareness towards CBE in our study might be due to the complexity of the procedure. Patients might think that they don't need such check-up as there is no family history of breast cancer, too busy with their daily routine or they feel embarrassed to allow healthcare providers to examine their breast. Furthermore, due to limited resource in developing countries like Malaysia, BSE therefore is considered as a simple, inexpensive, non-invasive and non-hazardous intervention, which is not only acceptable, cost-effective and appropriate, but also allows women to take initiative action on their health prevention (Hadi et al., 2010). However, despite its advantages, BSE practice is quite low among Asian women compared to Western counterparts (Parsa et al., 2006). Our findings suggest the need for more extensive educational programmes on breast cancer screening to create awareness and improve knowledge among Malaysian women and thus, help in earlier diagnosis and better prognosis.

Study by Al-Dubai et al., 2012 which was conducted among 222 Malaysian women in Selangor, Malaysia reported that the four main barriers to perform BSE were 'I do not know how to do it', 'I do not have any symptoms', 'I am scared of being diagnosed with breast cancer' and 'doing BSE will make me worry about breast cancer'. This is reflective of the neglecting attitude of Malaysian women which will affect the performance of BSE, increasing the late presentation of breast cancer. Similarly, in Karayurt et al., 2008 the most common reasons for not doing BSE were "not knowing how to perform BSE", "not expecting to get breast cancer" and "not having a close relative with breast cancer". In other studies, the most common reason for not doing BSE was lack of knowledge (Jarvandi et al., 2002; Isara and Ojedokun, 2015; Parsa and Kandiah, 2005). Systematic review by Kolahdooz et al., 2014 found five factors that could contribute to knowledge, attitudes, and behaviours towards cancer screening in indigenous populations which are access to screening, knowledge about cancer and screening, educational attainment, perceived necessity of screening and age. Delayed presentation for three or more months from the first duration to the time of the diagnosis and treatment is associated with increased tumour size and poor long-time survival (Hadi et al., 2010).

In the present study, the overall total knowledge score of breast cancer was average. Few other studies concluded that their study population had serious knowledge deficit on breast cancer (Hadi et al., 2010; Abdul Hadi et al., 2010; Oluwatosin and Oladepo, 2006; Isara and Ojedokun, 2015; Ranasinghe et al., 2013; Somdatta and Baridalyne, 2008). Knowledgeable women and their beliefs about breast cancer and its management may contribute significantly to medical help-seeking behaviours and increase their adherence to recommended breast cancer screening (Grunfeld et al., 2002; Sadler et al., 2007). Healthcare providers are the primary team to educate the public on breast cancer prevention, detection and treatment. Providing information regarding the availability of screening tests for breast cancer and designing pamphlets on the risk factors of this disease may improve public awareness. Lack of early detection programmes, adequate diagnosis and treatment facilities may result in a high proportion of women presenting with late stage of the disease which may not only increase the cost of treatment but there are fair chances that these patients might not response successfully to the oncologic regimen (Parsa and Kandiah, 2005).

In Oluwatosin and Oladepo, 2006, health workers were not helpful with information to the public thereby, constituting a challenge to community health nurses and other health workers to provide essential information to the public. A recent systematic review by Azeem et al., 2015 concluded that the current and future healthcare providers in Malaysia have only moderate knowledge on breast cancer. They are more than happy to be involved in breast cancer education but had poor involvement due to multiple organizational barriers (Azeem et al., 2015). Thus, effort should be made to overcome such scenario in Malaysia before subsequent actions can be taken to increase awareness on breast cancer in the population. Adequate knowledge of breast cancer and BSE among health care providers is essential to kick start interest in taking more concrete steps towards health changing

behaviour among the public. Chan et al., 2007 used a community-based outreach program in improving breast cancer awareness among women in Hong Kong. Almost every participant was able to give correct answers after the educational outreach program and correctly narrate the exact time and proper technique in conducting BSE such as using fingertips for palpation, they knew 2-3 days post-menstruation is the best day to practice BSE and bathing is the most appropriate time to do so.

In Abdul Hadi et al., (2010), age, educational level, employment status and monthly income significantly influenced breast cancer knowledge. Similarly, in Parsa and Kandiah, (2005), education, employment status and age were significantly associated with better level of knowledge. Nevertheless, in our study, knowledge was significantly better among married women with spouses, those with personal history of breast cancer and monthly personal income. By using multiple-linear regression analysis, those predictors could explain about 16.0% of the variation in the patients total knowledge score of breast cancer. Spearman's correlation test showed a significant positive relationship between monthly personal income and breast cancer awareness. Those with higher income will have a higher health-seeking behaviour. As a result, these women are more likely to be active learners and are able to access available health-related information. Those with personal history of breast cancer have better awareness due to contribution of personal experience and information from friends, relatives and health care providers. Those married with spouse would score better because they have responsibility and commitments of taking care of their family and children and thus, are more likely to accept health education and awareness messages.

Perception towards Breast Cancer Treatment and its Outcomes

Generally, respondents had positive perceptions towards breast cancer treatment outcomes. However, half of them felt that the treatment is a long and painful process and are more helpful to younger people. These findings are similar to those reported by Hadi et al., (2010). Our study subjects probably felt that breast cancer patients would need to undergo a long and tedious process of surgery, chemotherapy or radiotherapy having said that it is more applicable to patients presenting at a later stage of breast cancer. Also, the side effects of chemotherapy such as anaemia and neutropenic sepsis may be troublesome and thus, delay the treatment modalities. Younger generation would have a better immune system to undergo chemotherapy and radiotherapy and thus, be able to combat against the disease rather than the elderly who have poorer immune system.

Awareness on breast cancer among our patients was average which could potentially contribute to delay in seeking medical help. Thus, there is a need for more awareness programs to educate women about breast cancer and promote the early detection and prevention of breast cancer.

Limitation

The pitfall of this study is that it was done in a single centre. Thus, the findings cannot be generalized beyond the study sample. The low $R^2(0.16)$ is probably because we didn't take into consideration other factors which might have influenced the knowledge of breast cancer such as source of information (elders, neighbors, friends, health workers, mass media). Perception towards treatment options such as chemotherapy, radiotherapy and surgery was not accessed. Also, the main barriers to practicing BSE and CBE were not evaluated.

Conflict of interest

The Authors declare that they have no conflicts of interest to disclose.

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