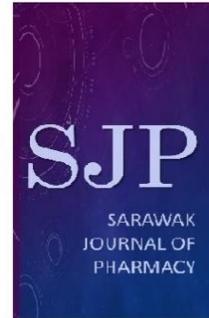


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Breast Self-Examination Awareness, Knowledge, Practice and Attitudes among Women: A Regional Study

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ABSTRACT

Introduction: Breast cancer incidence, morbidity, and mortality are increasing globally. Early detection of breast cancer is crucial in assuring better outcomes as it makes for a better prognosis. However, breast self-examination (BSE) is not commonly practised. We aimed to investigate the awareness, knowledge, practice, and attitudes towards BSE among women in Miri, Sarawak, Malaysia.

Methods: We conducted this cross-sectional study between January and March 2022 among female patients, caregivers, and visitors present at Miri Hospital. Eligible family members and friends of the hospital staff were also invited to participate in this study. The self-administered questionnaire consisted of four sections, which gathered information on the respondents' demographics, awareness, practice, knowledge, and attitudes towards BSE. Descriptive statistics summarised the results. A score of ≥ 9 implied good knowledge, and good BSE practice was defined as when they (i) practised BSE monthly, (ii) practised BSE at the right timing, i.e., after menstruation, and (iii) performed BSE in the past month.

Result: Among 179 respondents with a median age of 35 (IQR=20 years old), most women (69.3%) were aware of BSE; however, they had poor knowledge of BSE (81.6%) and were unable to recognise other non-lump signs such as skin dimpling (82.1%). About 38.5% had experience practising BSE, but only 3.9% had good BSE practice. The majority were positive about the benefit of BSE and reported that performing BSE was not difficult and not time-wasting. Nevertheless, they were afraid of finding signs of breast cancer.

Conclusion: Our study showed that many women were aware of BSE and have positive attitudes towards practising it. However, only a minority had good BSE knowledge and experience in practice. Hence, conducting breast cancer awareness campaigns is necessary to empower more women in breast cancer management, especially in promoting the benefits and importance of early detection.

Keywords: breast, examination, BSE, breast cancer, women

INTRODUCTION

Over the past decades, breast cancer has raised concerns over the world. The incidence, morbidity, and mortality of breast cancer, have increased the healthcare burden globally (1). It is one of the most common cancers in many countries, including Malaysia (1). It happens 100 times more commonly in women than men (2). In 2018, World Health Organization (WHO) reported the incidence rate of breast cancer at 17.3%, and the mortality rate at 11.0% (3). While in 2020, breast cancer has the highest number of new cancer cases and ranked number two among the cancers causing deaths in Malaysia (4).

During the initial stage of breast cancer, a patient is usually asymptomatic. As the tumour grows, the patient may develop painless lumps in the breast, under the armpit. The patients may also experience breast tenderness, thickening or swelling of the skin around the breast, and discharge from the nipple (5). WHO reported that the aetiologies of the increasing incidence of breast cancer include an increasing number of senior citizens and, more importantly, lifestyle-related risk factors such as taking unhealthy foods or obesity. (6).

Breast cancer patients had statistically significantly higher Out-of-pocket (OOP) payments compared to other cancers due to expensive devices and family care costs. OOP payments made by individuals to health care providers during service include the cost of using resources for cancer care and related consequences (7). Payments are made by patients, their families, or third-party payers if survivors have insurance coverage (8).

In Malaysia, a study indicated that the average annual OOP cost was RM1,037,446.23 (8). The highest percentage of the cost component was contributed by the cost of adjuvant therapy, RM 334,056.00 (30.2%); traditional medicine and complementary medicine, RM 268,278.00 (24.3%). The highest mean cost was chemotherapy (RM16,825), followed by dressing (RM4,986.3) and adjuvant therapy (RM4,985.91). This finding was consistent with a previous study which revealed that a copay for chemotherapy drugs is a financial hardship for many patients due to its high price (8).

Early detection of breast cancer is crucial in assuring better outcomes as early detection makes for a better prognosis. Breast cancer is detectable through mammography, clinical breast examination, and breast self-examination (BSE) (9). BSE is the easiest and most convenient method, and more importantly, is cost-free. It allows women to detect unusual changes in their breast tissues through routine examination. Many people are unaware of the symptoms of cancers, which can potentially lead to late diagnosis (10). So, examining breasts routinely is one of the best ways to detect breast cancer early and reduce the mortality caused by breast cancer (11).

Although BSE helps detect breast cancer, it is not commonly practised (12). The increasing trend of breast cancer mortality is alarming and indicates the need for educational programs promoting the importance of BSE. This study aimed to investigate BSE awareness, knowledge, practice, and attitudes among women in Miri, Sarawak.

METHODS

Study Design, Period, and Setting

We conducted a cross-sectional study using a self-administered questionnaire that had been validated in the local population (13). Data collection took place between January and March 2022 in Miri, Sarawak.

Study Participants and Sampling

The target population of this study included female patients, caregivers, and visitors present at Miri Hospital during the data collection period. Eligible family members and friends of the hospital staff were also invited to participate. We applied the convenience sampling method to recruit potential respondents. All respondents aged above 18 years old, who were able to read and understand English or Malay language. Exclusion criteria included those who were unable to respond to the questionnaires, failed to, or were unable to provide full written consent from the study.

During data collection, the researchers explained the study and distributed the questionnaires. The questionnaires took approximately 15 minutes to complete. Upon completion, we expected the respondents to return the questionnaires. The participation was voluntary, and the respondents were reassured to answer as truthfully as possible.

Data Collection Tool

The questionnaires were available in English and Malay and consisted of four sections. Section A of the questionnaire gathered information on the respondents' demographics and BSE awareness. The demographic characteristics included age, race, religion, educational level, employment status, exposure in the health science-related field (working or studying), monthly income, family history of breast cancer, personal history of breast cancer, medical insurance coverage, long-term contraception use, number of pregnancies, and experience of breastfeeding. To elicit information on the awareness of BSE, we asked one question on whether the respondents had heard of BSE.

Section B consisted of six questions that elucidated BSE practice, including experience in practising BSE, the frequency, the timing of BSE practice, and when was the last time the respondents performed BSE. They were also asked if any abnormality was discovered and if they consulted a doctor. Good BSE practice was defined as when the respondents fulfilled the following: (i) practised BSE monthly, (ii) practiced BSE at the right timing, i.e., after menstruation, and (iii) performed BSE in the past month.

Section C consisted of nine questions that explore the respondents' knowledge of BSE. The questions were focused on the role of BSE in the early detection of breast cancer, frequency and timing to perform BSE, correct technique in performing BSE, and signs of breast cancer. In the BSE knowledge assessment, each correct response contributed one point, negative one point for each incorrect response, and zero points for an unsure response. The maximum score

for knowledge questions was 15 points. A score of ≥ 9 implied good knowledge, whereas a score of < 9 was considered poor knowledge.

Lastly, Section D contained four questions that assess the respondents' attitudes towards practising BSE. The questions tested their opinion on BSE in breast cancer detection, whether BSE was difficult to perform and wasting their time, and if they were afraid of finding the signs of breast cancer.

Data Processing and Analysis

We performed data cleaning and analysis using Microsoft Excel and SPSS version 25. Descriptive statistics summarised the demographic variables and respondents' BSE awareness, knowledge, practice, and attitudes towards BSE. Continuous variables were reported as median (interquartile range, IQR), whereas the categorical variables were frequency and percentage.

Ethical Consideration

This study was registered in the National Medical Research Registry (NMRR ID-22-00018-Z11(IIR)) and approved by the Medical Research and Ethics Committee, Ministry of Health Malaysia.

RESULT*Demographic Characteristics*

We distributed a total of 211 questionnaires to the eligible respondents. One hundred and ninety-seven respondents (93.0%) returned the questionnaires, and 179 completed the questionnaire, with a response rate of 84.8%. The median age of the respondents was 35 years old (IQR=20 years old). The majority were married (56.4%), Chinese (29.6%), Christian (58.7%), had secondary school education (54.7%); and were employed (54.3%). Most respondents had no family history of breast cancer (86.6%), and 8.9% reported having a personal history of breast cancer. Table 1 summarises the respondents' demographic characteristics.

Table 1. Demographic Characteristics of Respondents (n=179)

Characteristics	n (%)
Age (years)	Median (IQR) : 35 (20)
Marital status	
Single	64 (35.8)
Married	101 (56.4)
Divorced	6 (3.4)
Widowed	8 (4.5)
Ethnicity	
Malay	36 (20.1)
Chinese	53 (29.6)
Iban	48 (26.8)
Others	42 (23.5)
Religion	
Islam	44 (24.6)
Christian	105 (58.7)
Buddhism	27 (15.1)
Others	3 (1.7)
Educational Level	
No formal education	5 (2.8)
Primary school	9 (5.0)
Secondary school	98 (54.7)
Diploma	34 (19.0)
Bachelor's degree & higher	33 (18.4)
Employment Status	
Housewife	49 (27.4)
Private employee	66 (36.9)
Government employee	18 (10.1)
Self-employed	13 (7.3)
Retiree	5 (2.8)
Pensioner	2 (1.1)
Student	3 (1.7)
Unemployed	2 (1.1)
Others	21 (11.7)

Table 1. Demographic Characteristics of Respondents (n=179) (*con't*)

Characteristics	n (%)
Work in health science-related field	
Yes	18 (10.1)
No	161 (89.9)
Study in health science-related field	
Yes	36 (20.1)
No	143 (79.9)
Monthly Income	
No income	67 (37.4)
<RM1000	23 (12.8)
RM1000-RM2000	44 (24.6)
RM2001-RM3000	19 (10.6)
RM3001-RM4000	14 (7.8)
>RM4000	12 (6.7)
Family history of breast cancer	
None	155 (86.6)
First-degree female relative (sister, mother, daughter)	4 (2.2)
First-degree male relative (brother or father)	2 (1.1)
Second-degree relative (aunt, grandmother, cousin)	10 (5.6)
Not sure	8 (4.5)
Personal history of breast cancer	
Yes	16 (8.9)
No	144 (80.4)
Not sure	19 (10.6)
Currently under follow-up for breast-related conditions	
Yes	15 (8.4)
No	164 (91.6)
Medical insurance coverage	
Yes	66 (36.9)
No	105 (58.7)
Not sure	8 (4.5)
Long-term contraception use	
Yes	22 (12.3)
No	152 (84.9)
Previously	5 (2.8)
Number of pregnancies	
0	87 (48.6)
1	16 (8.9)
2	29 (16.2)
3	18 (10.1)
4	16 (8.9)
>4	13 (7.3)
Experience of breastfeeding	
Yes	87 (48.6)
No	92 (51.4)
Heard of BSE	
Yes	124 (69.3)
No	55 (30.7)

Table 2: Knowledge of BSE (n=179)

No.	Questions	n (%)
1	Does BSE help detect breast cancer early?	
	Correct Responses	119 (66.5)
	Incorrect Responses	6 (3.4)
	Unsure	54 (32.0)
2	How often must BSE be performed?	
	Correct Responses	52 (29.1)
	Incorrect Responses	59 (32.9)
	Unsure	68 (38.0)
3	When is the right time to perform BSE?	
	Correct Responses	38 (21.2)
	Incorrect Responses	57 (31.9)
	Unsure	84 (46.9)
4	Which part of the hand should be used to perform BSE?	
	Correct Responses	38 (21.2)
	Incorrect Responses	84 (47.0)
	Unsure	57 (31.8)
5	In which of the following steps both of the hands are raised?	
	Correct Responses	103 (57.5)
	Incorrect Responses	19 (10.6)
	Unsure	57 (31.8)
6	The direction of hand movement during BSE?	
	Correct Responses	116 (64.8)
	Incorrect Responses	15 (8.4)
	Unsure	48 (26.8)
7	Which area to examine when performing BSE?	
	Unsure	33 (18.4)
	(a) Breast	Correct responses: 126 (70.4)
	(b) Armpit	Correct responses: 80 (44.7)
	(c) Shoulder	Incorrect responses: 2 (1.1)
	(d) Between breast and collarbone	Correct responses: 49 (27.4)
8	Which is the correct posture when performing BSE?	
	Unsure	37 (20.7)
	(a) Standing	Correct responses: 121 (67.6)
	(b) Lying down	Correct responses: 67 (37.4)
	(c) Squatting	Incorrect responses: 1 (0.6)
9	Which of the following is (are) the sign of breast cancer?	
	Unsure	34 (19.0)
	(a) Change in breast size	Correct responses: 79 (44.1)
	(b) Lump	Correct responses: 133 (74.3)
	(c) Saggy breast	Incorrect responses: 17 (9.5)
	(d) Nipple discharge	Correct responses: 76 (42.5)
	(e) Skin dimpling (skin texture similar to an orange peel)	Correct responses: 32 (17.9)

Note: Questions 7 to 9 are multiple choices and allow the respondents to choose more than one answer option. The frequencies and percentages for the questions represent the number and proportions of the respondents who selected the respective answer option. Percentages may not total 100 because of rounding.

Awareness and Knowledge of BSE

In this study, about two-thirds of the respondents reported that they had heard of BSE (69.3%) and agreed that it helps detect breast cancer early (66.5%). Nonetheless, many did not know or were unsure of the suitable interval (70.9%), the right time to perform BSE (78.8%), and the right part of the hand used to perform BSE (78.8%). The majority identified the correct direction of the hand movement (70.4%) during BSE but less than half recognised the need to examine the armpit (44.7%) and the area between the breast and collarbone (27.4%). Furthermore, only a minority (17.9%) of the respondents recognised that skin dimpling is a sign of breast cancer. Table 2 presents the summary of responses to the knowledge questions. Apart from that, only a minority (18.4%) had good knowledge, with a knowledge score of 9 or higher. Most respondents had knowledge scores between 5 and 7 points, out of the maximum score of 15. The mean knowledge score was 5.41 (SD=0.27 points). Table 3 illustrates the knowledge score distribution.

Table 3: BSE Knowledge Score (n=179)

Points	n (%)
-1	5 (2.8)
0	19 (10.6)
1	10 (5.6)
2	5 (2.8)
3	19 (10.6)
4	8 (4.5)
5	19 (10.6)
6	25 (14.0)
7	21 (11.7)
8	15 (8.4)
9	11 (6.1)
10	6 (3.4)
11	6 (3.4)
12	5 (2.8)
13	2 (1.1)
14	3 (1.8)

Note: Percentages may not total 100 because of rounding

BSE Practice

In the current study, we also attained information on BSE practice. Only about one-third (38.5%) had experience in practising BSE. Eleven respondents (15.9%) practised BSE at the recommended monthly interval, whereas 17 (24.6%) claimed to have performed BSE at the right timing, i.e after menstruation. Our findings showed that about a third of the women (37.7%) who claimed to have experience in practising BSE had performed BSE in the past month. However, we found that only a small minority (3.9%) had fulfilled the three criteria for good BSE practice. Among those who performed BSE, six discovered abnormalities, and four consulted doctors. Table 4 summarises our findings with regard to BSE practice.

Table 4: BSE Practice

Questions	n (%)
Have you ever practised BSE? (n=179)	
Yes	69 (38.5)
No	110 (61.5)
If the answer to the question above is yes, how often? (n=69)	
Weekly	9 (13.1)
Monthly	11 (15.9)
Occasionally	34 (49.3)
Rarely	15 (21.7)
Timing of practice of BSE? (n=69)	
Before menstruation	10 (14.5)
During menstruation	1 (1.5)
After menstruation	17 (24.6)
When remember	41 (59.4)
When was the last time you performed BSE? (n=69)	
In the past month	26 (37.7)
More than one month ago	24 (34.8)
More than one year ago	19 (27.5)
Have you ever discovered any abnormality in your breast? (n=69)	
Yes	6 (8.7)
No	63 (91.3)
If the answer to the question above is yes, have you consulted a doctor? (n=6)	
Yes	4 (66.7)
No	2 (33.3)

Attitudes towards BSE

The majority of respondents were positive that BSE helps to detect breast cancer. None disagreed with the statement. We also observed that most respondents agreed that BSE is not difficult to perform (77.7%) and is not time-wasting (79.9%). However, most of them (73.2%) were afraid of finding the signs of breast cancer. Table 5 summarises the responses.

Table 5: Attitudes towards BSE (n=179)

Questions	n (%)
I think BSE helps to detect breast cancer.	
Strongly Agree	60 (33.5)
Agree	96 (53.6)
Neutral	23 (12.8)
I think BSE is not difficult to perform.	
Strongly Agree	51 (28.5)
Agree	88 (49.2)
Neutral	29 (16.2)
Disagree	10 (5.6)
Strongly Disagree	1 (0.6)
I think performing BSE is wasting my time.	
Strongly Agree	2 (1.1)
Agree	1 (0.6)
Neutral	33 (18.4)
Disagree	97 (54.2)
Strongly Disagree	46 (25.7)
Are you afraid of finding the signs of breast cancer?	
Yes	131 (73.2)
No	48 (26.8)

DISCUSSION

Awareness of BSE

In this study, our results showed that more than half of the respondents (69.3%) had heard of BSE. Studies conducted in other states in West Malaysia had reported similar findings; 69.1% of respondents in Klang Valley and 78.4% in Selangor and Penang heard about BSE (12, 14). However, another study demonstrated that a higher proportion of the respondents (91.0%) were aware of BSE (15). Respondent recruitment for the study took place in public areas and shopping malls. Most respondents in the study were younger (between 18 and 29 years old) and had higher education levels which may contribute to the inconsistent findings as the demographics differed. In the previous studies, the respondents recognised printed materials such as newspapers and magazines as their primary source of information regarding BSE (12, 15), implicating this could be the right direction of the health education team in promoting BSE as the promotion remains inadequate in Malaysia, and more effort has been directed at clinical breast examination and mammography (16).

Knowledge of BSE

Our current study showed that the knowledge of early detection remains low. A majority (81.6%) of women in Miri, Sarawak, had poor knowledge of BSE, which is consistent with other studies conducted in Malaysia, which concluded that knowledge of breast cancer remains inadequate among female students (17,18). However, we found that more women (74.3%) know that a lump is a sign of breast cancer, which is slightly higher than that reported in India (19). These figures have improved compared to that two decades ago, which reported that only 32.0% of respondents in Nigeria recognised that a breast lump was a warning sign (20). Nevertheless, most women in our study (82.1%) could not recognise other non-lump signs such as skin dimpling. Boulos and Ghali noted a similar result in which changes in nipple shape, nipple retraction, and bloody nipple discharge were less known (21).

BSE Practice

In our study, we observed low adoption of BSE practice among women in the general public. Our findings showed that only 38.5% of the women practised BSE, and only 37.7% performed BSE within the previous month. The proportions were similar to other studies conducted in Malaysia, which concluded that only a quarter and less than half of the women performed BSE, respectively (12, 14). Akhtari et al. also concluded that knowledge of breast cancer and frequency of performing BSE were still inadequate among female students in Malaysia (17). In the present study, only seven women (3.9%) had good BSE practice, and 15.9% of the respondents who had experience in practising BSE performed BSE every month. It was similar to studies that found that only 19.0% of Malaysian women teachers (22) and 19.6% of female students in public universities practised BSE regularly (17). In contrast, higher percentages (47.9%) of health workers in Nigeria performed BSE monthly (23).

It is recommended to perform BSE once a month, preferably 7-10 days after menstruation, or once a month on the same day in menopausal women (24). However, in the current study, only 24.6% of the respondents performed BSE after menstruation, as the majority (59.4%) tend to perform BSE only when they remember. Conflicting results were found in other studies among

female undergraduate students in Ghana (25) and Cameroon (26), in which 62.0% and 7.0% of the respondents performed BSE a few days after menstruation, respectively.

Attitudes towards BSE

Although the potential use of BSE as a screening method for breast cancer is controversial, a study showed that the practice of BSE is still relevant (27). Despite poor BSE practice in our study, most were aware of the benefit of BSE, as 87.1% of the respondents either agreed or strongly agreed that BSE helps detect breast cancer. However, our finding was lower than a study conducted in Selangor, with 98.0% of the respondents agreeing that BSE aids in the early detection of breast cancer (28). The women in our study reported that time consumption or difficulty in performing BSE were not deterrents. However, our study expressed the fears of detecting breast cancer. On the contrary, Akhtari and his peers demonstrated that the barriers to performing BSE included the worries of being diagnosed with breast cancer and the perception that BSE was time-consuming (12).

Limitation of Study

There were several limitations to this study. Firstly, our study consisted of most respondents receiving education lower than tertiary level. The findings may not be generalisable to the population of different demographic backgrounds, especially the educational levels, such as university students and healthcare workers. Secondly, the respondents self-reported their BSE practice; thus, BSE practice may be overestimated due to potential social desirability bias. Lastly, the researchers allowed the respondents to respond to the questionnaires and return them upon completion; the possibility of referring to online information resources may also exist. Therefore, the knowledge score might be overestimated if the respondents were not truthful.

CONCLUSION

Although our study showed that many women were aware of BSE and have positive attitudes towards practising it, only a minority had good BSE knowledge and experience. Hence, breast cancer awareness campaigns are necessary to empower more women in breast cancer management, especially in promoting the benefits and importance of early detection.

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