

## RESEARCH COMMUNICATION

# Exploration of Barriers to Breast-Self Examination among Urban Women in Shah Alam, Malaysia: A Cross Sectional Study

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### Abstract

**Background:** Breast cancer is the most common cancer among women in Malaysia. Barriers for practicing breast self examination (BSE) await exploration. **Objective:** To assess the practice of BSE and its correlated factors and particularly barriers amongst urban women in Malaysia. **Methods:** This cross-sectional study was conducted with 222 Malaysian women using a self-administered questionnaire. **Results:** The mean (SD) age was 28.5 ( $\pm 9.2$ ) years, 59.0% were university graduates. Of the total, 81.1% were aware of breast cancer and 55% practiced BSE. Amongst 45% of respondents who did not practice BSE, 79.8% did not know how to do it, 60.6% feared being diagnosed with breast cancer, 59.6% were worried about detecting breast cancer, 22% reported that they should not touch their bodies, 44% and 28% reported BSE is embarrassing or unpleasant, 29% time consuming, 22% thought they would never have breast cancer or it is ineffective and finally 20% perceived BSE as unimportant. Logistic regression modeling showed that respondents aged  $\geq 45$  years, being Malay, married and having a high education level were more likely to practice BSE ( $p < 0.05$ ). **Conclusion:** In this study sample, a significant proportion of respondents was aware of breast cancer but did not practice BSE. Knowledge, psychological, cultural, perception and environmental factors were identified as barriers. BSE practice was associated significantly with socio-demographic factors and socioeconomic status.

**Keywords:** Breast self examination - barriers - urban women - Malaysia

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### Introduction

Breast cancer is a major public health problem in both developed and developing countries (Parkin et al., 2005) with more than one million new cases are diagnosed annually (Pisani et al., 2002). A systematic review has reported currently that the evidence of breast self examination (BSE) and clinical breast examination in reducing mortality has no benefit, the BSE increases results of benign biopsy and anxiety amongst women practicing BSE (Kosters & Gotzsche, 2003; Nelson et al., 2009). However, a handful number of studies reported early detection of breast cancer is an effective way to improve the patients' prognosis (Ellman et al., 1993; Elmore et al., 2005; Lam et al., 2008). Additionally, Mitra (2000) argued that BSE, particularly, in developing countries was the only realistic approach to early detection of breast cancer, as it is simple, cost effective i.e. does not need a technology and teaching women to practice BSE may raise the awareness about early detection of breast cancer, particularly amongst women living in rural areas

where access to clinical breast examination is not possible (Dundar et al., 2006; Parvani, 2011). Besides, breast cancer has been reported recently to account for 23% of all new cancer cases and 14% of all cancer deaths. Half of the cases and 60% of deaths happen in economically developing countries. Early detection via mammography is unfeasible for economically developing countries and therefore clinical breast exam and promotion of awareness of early signs and symptoms are recommended for these countries (Jemal et al., 2011).

Furthermore, BSE familiarize woman with both the appearance and the feel of their breasts and help detection of any abnormal changes in breasts as early as possible (Karayurt et al., 2008). Health behaviors such as BSE can help empower women to take some control and responsibility over their health promotion. The 5-year survival rate is 92% with early detection of breast cancer and this rate decreases to 71% if the cancer is diagnosed at the latest stage (Lauver et al., 1999). In Malaysia, breast cancer is reported as the most common cancer among women (National Cancer Registry, 2006). It accounted for

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31% of newly diagnosed female cancer cases (Al-Dubai et al., 2012) and most of the diagnosed cases presented in the advanced stages of disease. A retrospective study of 366 breast cancer cases, showed that the common presenting symptom is a breast lump (81.4%), and most patients detected it themselves (97.3%) whilst medical staff and mammogram detected 1.6% and 1.1% cases respectively (Leelavathi et al., 2006).

The practice and the frequency of BSE amongst Malaysian women (Mehrnoosh et al., 2011; Parsa et al., 2008) is not different from other counterparts in Yemen, Jordan and Turkey, respectively (Parsa & Kandiah, 2005; Secginli & Nahcivan, 2006; Ahmed, 2010).

According to Chee et al. (2003) study amongst 1720 Malaysian working women, 79.1% had heard about the BSE and 53.0% knew how to conduct the examination, but, only 44.8% had ever done the examination. Rosmawati (2010) reported that among 59,903 Malaysian women, breast self examination and clinical breast examination performed by 34% and 31% of women respectively. Only a few women actually examine themselves and the majority of them don't know how to do BSE (Sen et al., 2002). The current literatures have reported many barriers to the practice of BSE. These included socio-demographic, attitude, awareness and knowledge (Omolase, 2008; Awodele et al., 2009; Dunn & Tan, 2011; Rasu et al., 2011).

Currently, there is a gap in the literature with respect to the barriers that include knowledge, attitude and awareness of BSE amongst Malaysian women. Therefore, this study aimed to assess the practice of BSE and its correlated factors with specific focus on barriers of BSE amongst urban women in Malaysia. The objectives of this study were: (1) To assess BSE and explore the social factors associated with BSE and (2) To identify barriers to the practice of BSE.

## Materials and Methods

### *Study design, setting and selection of participants*

This cross sectional study was conducted among 222 Malaysian women living in an urban setting in Shah Alam, Malaysia. They were approached in public areas and shopping malls using a non-probability convenience sampling technique. Women aged 18 years or more were recruited as they could be consented. Illiterates and those did not speak English or Bahasa Malaysia were excluded due to limited resources and finally, those who refused to participate were excluded as the participation was voluntarily.

### *Measures*

Self administered questionnaire from previous studies (Maurer, 1997; Rashidi & Rajaram, 2000; Chee et al., 2003; Karayurt et al., 2008) was used in this study. Socio-demographic status included questions on age, race (Malay, Chinese or Indian), marital status (married, other status [single, widowed, divorced or cohabiting]), level of education (primary or secondary school or university graduate), occupation (housewife, private job, government servant or student), monthly household income (<2000,

2000-3000 or >3000 Malaysian Ringgit [RM]), family history of any cancer and family history of breast cancer. Awareness of breast cancer and BSE were assessed by two close ended questions 'did you hear about breast cancer?' and 'did you hear about BSE?' respectively. Knowledge of BSE was assessed by responding to two statements: 'BSE is important for early detection of breast cancer', and 'BSE should be started at 19 years of age', and one question 'do you know how BSE is performed?' Response options included 'yes', 'no' or 'I don't know'; the last two options were coded as one category 'no'.

Practice of BSE was assessed by asking participants if they had ever done BSE, frequency of doing it (options included; once a month, once in two months, once in three to five months, twice a year and once a year), age of starting to do BSE ( $\leq 19$  years old and  $>19$  years old), the last time they performed BSE (options included: in the last month, three to six months ago, one year ago), time spent for each breast during examination ( $\geq 2$  minutes, 3-5 minutes, more than 5 minutes) and how they perform BSE (options included 'palpate breast with one finger', 'palpate with palm and three fingers' or 'anyhow').

Barriers for performing BSE were investigated by asking participants to 'agree' or to 'disagree' that any of the 12 items stated in the questionnaire were barriers to do BSE. Examples of these barriers included statements such as; 'I don't know how to do it', 'I don't think it is important', 'Doing BSE will make me worry about breast cancer', 'I am scared of being diagnosed with breast cancer' and 'I don't have enough privacy to do BSE'. Participants were informed that that they could answer more than one statement. Questionnaires were piloted, amongst separate samples that were not included in the main study, and distributed in both English and Bahasa Malaysia language.

### *Ethical approval and confidentiality*

Approval for the study was obtained from the research committee of the Management and Science University, Malaysia. The purpose of the study was explained to respondents verbally and a written description of the purpose and aims of the study was provided. Confidentiality and their right to withdraw were assured and participants who agreed to participate signed a formal consent form.

### *Statistical analysis*

Analysis was performed by using SPSS v 16.0. Descriptive statistics were obtained for all the variables in the study. Age and monthly income were categorized around median. Chi-Square test and simple logistic regression were used to test for the association between BSE practice and other categorical variables in the study. Multivariate logistic regression analysis was performed to obtain significant factors associated with BSE among women. For BSE, 'yes' was coded (1) and 'no' was coded (0). All independent variables found to have significant association ( $p < 0.05$ ) with BSE on bivariate analysis were included in the multivariate logistic regression analysis. Multi-collinearity between independent variables was evaluated by observing the standard error values. To assess

**Table 1. Socio-Demographic Characteristics of the Respondents (n=222)**

Characteristics	n	%
Age group (yrs)	18-29	155 69.8
	30-44	48 21.6
	≥45	19 8.6
Race	Malay	151 68.0
	Chinese	20 9.0
	Indian	51 23.0
Marital status	Married	92 41.4
	Other status	130 58.6
Level of education	Primary/secondary school	91 41.0
	University graduate	131 59.0
Occupation	Housewife	17 7.7
	Private job	109 49.1
	Government servant	27 12.2
	Student	69 31.1
Monthly income (RM)*	< 2000	38 17.1
	2000-3000	65 29.3
	>3000	119 53.6
Family history of any cancer	Yes	36 16.2
	No	186 83.8
Family history of breast cancer	Yes	18 8.1
	No	204 91.9

\*One USD = RM 3.1 at the time of study.

the model fitting, the Hosmer-Lemeshow goodness-of-fit test was conducted. The accepted level of significance (p-value) was set at < 0.05.

## Results

### *Socio-demographic, socioeconomic and cancer history characteristics*

The mean (SD) age of respondents was 28.5 (±9.2) years with the majority aged 18 to 29 years (69.8%), followed by 30 to 44 years (21.6%). Most of the respondents were Malays (68.0%), followed by Indians (23.0%) and then Chinese (9.0%). Of the respondents 58.6% were in other marital status, university graduates (59.0%), serving in the private sector (49.1%) and had a monthly household income of more than RM 3000 (53.6%). 8% had a family history of breast cancer and 16.2% had a family history of other malignancy (Table 1).

### *Awareness of breast cancer and knowledge of BSE*

One hundred eighty had heard about breast cancer (81.1%). Two hundred and two (90.0%) had heard about BSE and 172 (77.5%) believed that BSE is important for early detection of breast cancer. Amongst respondents 103(46.4%) knew how to perform BSE. Regarding the age to begin BSE, the majority thought it was 19 years and older (73.4%). For those (202) who had heard about BSE, the most common source of information for them was printed media such as newspapers and magazines (34.7%) followed by medical health personnel (28.7%) and electronic media such as TV and radio (22.3%).

### *Practice and reasons of doing BSE*

Almost 55% of respondents have performed BSE before. Among those who practice BSE, only 28.5% of

**Table 2. Awareness of Breast Cancer and Knowledge of BSE (n=222)**

Statements	Yes n (%)	No n (%)
Heard about breast cancer	180 (81.1)	42 (18.9)
Heard about breast-self examination	202 (91.0)	20 (09.0)
BSE is important for early detection of breast cancer	172 (77.5)	50 (22.5)
Know how BSE is performed	103 (46.4)	119 (53.6)
Women should perform BSE at more than 19 years of age	163 (73.4)	59 (26.6)
Sources of information (n=202)		
Medical health personnel	58 (28.7)	144 (71.3)
Friends/colleagues	18 (08.9)	184 (91.1)
Family	11 (05.4)	191 (94.6)
Television/Radio	45 (22.3)	157 (77.7)
Newspaper/Magazines	70 (34.7)	132 (65.3)

**Table 3. Respondents Practice and Reasons of Doing BSE**

Variable	n	%
Have done BSE before	Total n= 222	
Yes	123	55.4
No	99	44.6
Frequency of BSE	Total n= 123	
Once a month	35	28.5
Once in two months	15	12.2
Once in three to five months	34	27.6
Twice a year	14	11.4
Once a year	25	20.3
At what age did you start BSE?		
≤19 years old	28	22.8
>19 years old	95	77.2
The last time you perform BSE		
In the last month	18	14.6
Three to six months ago	49	39.9
One year ago	56	45.5
Time spent for each breast during BSE (minutes)		
≥2	41	33.3
3-5	47	38.2
5	35	28.5
How is BSE done?		
Palpate with one finger	6	4.9
Palpate with palm and three fingers	101	82.1
Anyhow	16	13
Reasons for doing BSE*		
To examine my breast regularly	109	88.6
Breast cancer in my family	21	17.1
My breast is bigger	19	15.4
I have other type of cancer	8	6.5
Others	31	25.2

\* Total number is not equal to 123 due to multiple responses

them practice BSE once a month. The majority (77.2%) of them begin BSE at the age of 19 years or older. Most of the respondents practice BSE correctly by palpating with palm and three fingers (82.1%). 41 spent 2 minutes or less for each breast examination (33.3%). The majority (88.6%) stated the reason for doing BSE was to examine their breast regularly, while 6.5% of them cited history of other malignancy as reason for doing BSE (Table 3).

### *Barriers towards performing BSE*

A total of ninety nine respondents (45%) who did

**Table 4. Barriers Towards Performing Breast-Self Examination (BSE) among Respondents (n = 99)**

Statements	n (%)
I don't know how to do it	79 (79.8)
I don't have any symptoms	62 (62.6)
I am scared of being diagnosed with breast cancer	60 (60.6)
Doing BSE will make me worry about breast cancer	59 (59.6)
BSE will be embarrassing to me	44 (44.4)
I don't have enough privacy to do BSE	36 (36.4)
Doing BSE will take too much time	29 (29.3)
Doing BSE will be unpleasant	28 (28.3)
I know that I can never have breast cancer	23 (23.2)
I don't believe in the efficacy of the test	22 (22.2)
I don't think I should touch my body like that	21 (21.2)
I don't think it is important	20 (20.2)

**Table 5. Bivariate Analysis: Association between Breast-Self Examination (BSE) and Socio-Demographic Variables**

Variables	Have you done BSE?		OR	95% CI	P value
	Yes n (%)	Non (%)			
<b>Age (yrs)*</b>					
18-29	77 (49.7)	78 (50.3)	1		
30-44	30 (62.5)	18 (37.5)	1.7	0.9-3.3	0.122
≥45	16 (84.2)	3 (15.8)	5.4	1.5-19.3	0.009
<b>Race*</b>					
Chinese	6 (30.0)	14 (70.0)	1		
Malay	89 (58.9)	62 (41.1)	3.3	1.2-9.2	0.019
Indian	28 (54.9)	23 (45.1)	2.8	0.9-8.6	0.614
<b>Marital status</b>					
Married	64 (69.6)	28 (30.4)	2.8	1.6-4.8	<0.001
Other	59 (45.4)	71 (54.6)	1		
<b>Level of education</b>					
University	81 (61.8)	50 (38.2)	1.9	1.1-3.3	0.021
Other	42 (46.2)	49 (53.8)	1		
<b>Occupation*</b>					
Housewife	8 (47.1)	9 (52.9)	1.2	0.4-3.6	0.708
Private job	67 (61.5)	42 (38.5)	2.2	1.2-4.1	0.012
Civil servant	19 (70.4)	8 (29.6)	3.3	1.3-4.1	0.015
Student	29 (42.0)	40 (58.0)	1		
<b>Monthly income* (RM)</b>					
<2000	15 (39.5)	23 (60.5)	1		
2000-3000	35 (53.8)	30 (46.2)	1.8	0.8-4.0	0.161
>3000	73 (61.3)	46 (38.7)	2.4	1.2-5.1	0.020
<b>Family history of any cancers</b>					
Yes	22 (61.1)	14 (38.9)	1.3	0.6-2.7	0.452
No	101(54.3)	85 (45.7)	1		
<b>Family history of breast cancer</b>					
Yes	9 (50.0)	9 (50.0)	1		
No	114(55.9)	90 (44.1)	1.3	0.5-3.3	0.630

not do BSE identified the barriers for not performing it. The most common reasons for not doing BSE were: 'I don't know how to do it' (79.8%), 'I don't have identifiable symptoms' (62.6%), fear of being diagnosed with breast cancer (60.6%) and worries to detect breast cancer (59.6%). Some respondents believed BSE would be embarrassing (44.4%) while 36.4% said 'they don't have enough privacy to perform the examination'. About 29.3% believed that BSE was time consuming while 28.3% reported that BSE was unpleasant. Few respondents (20.2%) thought BSE was not important at all (Table 4). Bivariate results of socio-demographic variables with BSE Table 5 shows that women aged ≥45 years (84.2%)

**Table 6. Results of the Binary Multiple Regression Predicting BSE in a Sample of Urban Women in Shah Alam, Malaysia (n= 222)**

Variable	B	S.E	Wald	Exp(B)	95%CI	P value
<b>Age</b>						
18-29	Ref					
30-44	0.316	0.444	0.504	1.4	0.6-3.3	0.478
≥45	1.905	0.754	6.384	6.7	1.5-29.5	0.012
<b>Race</b>						
Chinese	Ref					
Malay	1.292	0.576	5.026	3.6	1.2-11.3	0.025
Indian	0.998	0.617	2.621	2.7	0.8-9.1	0.105
<b>Marital status</b>						
Other status	Ref					
Married	0.947	0.383	6.117	2.6	1.2-5.5	0.013
<b>Level of education</b>						
Prim/second	Ref					
University	1.154	0.33	12.197	3.2	1.6-6.1	0.001
Constant	-2.148	0.614	12.226	0.1		0

\*B= Regression estimate; S.E gives standard errors; Exp (B) gives the odds ratio; 95% CI= 95% Confidence Interval; Ref, reference category; Prim/second, primary or secondary

practiced BSE more than those aged 18- 29 years (49.7%) (OR=5.4, 95% CI 1.5-19.3, p= 0.009). Malays practiced BSE (58.9%) more than Chinese (30%) (OR= 3.3, 95% CI 1.2-9.2, p= 0.019). Significant association was found between BSE practice and occupation; respondents who were privately employed (61.5%) (OR= 2.2, 95% CI 1.2-4.1, p= 0.012) and government servants (70.4%) (OR= 3.3, 95% CI 1.3-4.1, p= 0.015) practiced BSE more than students (42.0%). Married women (69.6%) practiced BSE more than singles (45.4%) (OR= 2.8, 95% CI 1.6-4.8, p< 0.001). University graduates (61.8%) practiced BSE more than those with primary or secondary education (46.2%) (OR= 1.9, 95% CI 1.1-3.3, p= 0.021) (Table 5).

#### Logistic regression results of factors associated with BSE

Variables that were significantly associated with BSE in bivariate analysis (Table 5) were included in the multiple logistic regressions. Variables entered into multiple logistic regressions were age, race, marital status, level of education, occupation and monthly income. BSE was more likely to be done among women aged ≥45 years in comparison to those aged 18-29 years (OR=6.7, 59% CI 1.5-29.5, p=0.012), among Malays compared to Chinese (OR=3.6, 59% CI 1.2-11.3, p=0.025), among married in comparison to other status (OR=2.6, 59% CI 1.2-5.5, p=0.105) and among those with university level of education compared to those with less than university level (OR=3.2, 59% CI 1.6-6.1, p=0.001) (Table 6). The total model was significant (p<0.001) and accounted for 20% of the variance. All the values of the standard errors in the model were below 5.0. This indicated there was no multi-collinearity among variables. The results of the Hosmer-Lemeshow test (p=0.638) indicated the goodness of fit of the multiple logistic model.

## Discussion

This cross sectional study was aimed to assess the

practice of BSE and its correlated factors with specific focus on barriers of BSE amongst urban women in Malaysia. In this study, most of the respondents (91.0%) were aware about breast-self examination (BSE). This rate of awareness was comparatively higher to that found among the general population of Sudan and Saudi Arabia 66.5% and 30.3%, respectively (Abdelrahman & Yousif, 2006; Jahan et al., 2006). These findings may be inferred to the characteristics of our young age literate study samples. About 55.4% of respondents in this study practiced BSE, but only 28.5% of them practiced it monthly. Our findings were higher than that of an Iranian and Egyptian (Abdel-Fattah et al., 2000; Haji-Mahmoodi et al., 2002) and lower than in other Malay and Congo samples (Chee et al., 2003; Mbanaso et al., 2005). Additionally, amongst this study samples, newspapers and magazines were found the most common source of information on breast-self examination (BSE) followed by information from medical health personnel. This finding was inconsistent with a previous study from Nigeria, Pakistan and amongst Malays young students (Kayode et al., 2005; Al-Naggar et al., 2011; Khokher et al., 2011) who reported television was the most common source of information. Again age, ethnicity factors and nature of recruitment in these studies may contribute to these variations in results.

With respect to the barriers of practicing BSE amongst this study samples, we have lent further support to the body of literature that lack of knowledge, not having symptoms, being afraid of diagnosis, were worried to detect breast cancer and lack of support from family and friends were the main barriers of not practicing BSE (Al-Naggar et al., 2011; Rosmawati, 2010). The findings of this study diverge in term of exploring the prevention orientation perception towards BSE. A significant percentage of participants believed that BSE was not important and not effective. In addition to this the cultural barriers towards BSE that included not to touch their bodies and BSE is embarrassing or unpleasant. Finally, the practice of BSE is time consuming and absences of privacy to practice it. These cultural and environmental factors in particular amongst the urban women in Shah Alam, Malaysia yet to be explored further.

With respect to the associated factors with BSE, level of education in the current study was an important predictor of BSE. The role of education in the uptake of preventive services such as BSE has been reported repeatedly (Khokher et al., 2011; Ravichandran et al., 2011; Rasu et al., 2011). According to Galobardes et al. (2006) education is an enabling factor for the receipt and uptake of health information and services. Older age (>45 years) and married women were found more likely to practice BSE and these were also in line with other studies (Dundar et al., 2006; Ravichandran et al., 2011). These may be due to that married women were more exposed to health care facilities and health care professionals during follow up at pregnancy and delivery. Also, amongst younger age the low suspicious risk may make this group less likely to practice BSE (Fancher et al., 2011). The role of ethnicity as a risk or protective factor for breast cancer and screening has been reported (Miranda et al., 2011). Nationally representative samples

of Malaysian households reported the protective effect of Malay ethnicity in the uptake of BSE (Dunn & Tan, 2011). Another previous study in Singapore found that Chinese were more knowledgeable on breast cancer and more likely to go for screening mammography in comparison to Malay women (Sim et al., 2009). The authors attributed that finding to the low socioeconomic status and low level of education among Malays women in their samples. However, they found that Malays women practiced BSE more than Chinese. In our study Malays had lower income and were less educated in comparison to Chinese. Again, it could be the economic status that may make poor people to look for the costless method for breast screening such as BSE. Therefore, in this study the emergence of Malaysian ethnicity as protective factor i.e. practicing BSE is not surprising.

Study limitations and strengths include the sampling method which made generalizability of the results inappropriate. Furthermore, the time of recruitment of the sample may have excluded potential participants. Nevertheless, the method of obtaining the data from respondents through self-administered questionnaire was optimum with respect of investigating this sensitive topic, BSE. The use of convenience sampling has been acknowledged as a method to understand complex phenomena and to generate hypotheses (Bowling, 2009).

In this study sample, a significant proportion of respondents was aware of breast cancer but did not practice BSE. Knowledge, psychological, cultural, perception and environmental factors were identified as barriers for not practicing BSE. BSE practice was associated significantly with socio-demographic factors and socioeconomic status.

Implication and future direction: There is a need to increase awareness among Malaysian women through massive nationwide campaigns and including information of BSE in the curriculum of secondary school and university students. In addition, the role of electronic media, particularly television should be stressed as it was found to play a key role in imparting health education and belief changes. Social networking sites could also be used amongst younger generations. Primary health care workers should be involved aggressively in health educational

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