RESEARCH ARTICLE

Knowledge of Female Undergraduate Students on Breast Cancer and Breast Self-examination in Klang Valley, Malaysia

Mehrnoosh Akhtari-Zavare[1], Latiffah A Latiff[1,2]*, Muhamad Hanafiah Juni[2], Salmiah Md Said[2], Irmi Zarina Ismail[3]

Abstract

Background: In Malaysia, breast cancer is the first cancer among females regardness of race. Aim: The purpose of this study was to identify the knowledge and BSE practice among undergraduate female students at four public universities in Klang Valley, Malaysia. Materials and Methods: This cross-sectional study was conducted among 820 undergraduate female students using a self-administered questionnaire covering socio-demographic data, knowledge of breast cancer and BSE practice. Results: The mean age of the respondents was 21.7±1.2 years. The majority of them were single (96.8%), Malay (91.9%) and 16.5% of respondents had a family history of breast cancer. This study showed low level of knowledge on breast cancer and breast self-examination among participants. Only 19.6% participants were performing BSE regularly. Knowledge of breast self-examination was significantly associated with BSE practice (p=0.00). Also, there were significant associations between performing BSE with age, marital status and being trained by a doctor for doing BSE (p<0.05). Conclusions: Our findings showed that the rate of BSE practice and knowledge of breast cancer is inadequate among young Malaysian females. A public health education program is essential to improve breast cancer prevention among this group.

Keywords: Breast cancer - breast self examination - knowledge - undergraduate students - Malaysia

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Introduction

Breast cancer is the most common cause of cancer morbidity and mortality among women in most of the developed and developing countries (Loh et al., 2014; WHO, 2014). Similarly, in Malaysia breast cancer is the most common cancer among females regardless of ethnic groups and from the age of 15 years onwards (National Cancer Registry, 2008). The National Cancer Registry (2008) reported that there are 11952 registered female breast cancer cases, accounting for 18% of all cancer cases registered.

In Malaysia, most of the breast cancer patients (50-60%) presenting at Stage 3 or 4 with little or no benefit for doing any form of therapy (Hisham and Yip, 2004). Cultural and social perceptions of breast cancer are the most important factors in the presentation of breast cancer at the advanced stage among Malaysian breast cancer patients (Hisham and Yip, 2003). Breast cancer not only threatens the life of a woman but also effects her body image and gender identity (Parsa et al., 2008). Therefore, early detection of breast cancer secure women against physical defects, premature mortality as well as psychological distress.

Early detection of breast cancer can be achived by performing clinical breast examination, mammography and Breast self-examination (BSE) (Ersin and Bahar, 2013; Yilmaz et al., 2013). Although BSE alone is not sufficient for early detection of breast cancer, but it is still an important screening tool for early detection of breast cancer in developing countries, because it is cheap, widely available, and does not require complex technical training (Giridhara et al., 2013). Overall, practicing BSE allows a woman to be familiar with her normal breast structure and helps her to learn to notice any unusual changes in her breast tissue (Akhtari-Zavare et al., 2013; Fotedar et al., 2013).

Several studies revealed the majority of Malaysian women demonstrated inadequate knowledge about breast cancer and studies showed breast self-examination practice has a significant relationship with breast cancer knowledge (Chong et al., 2014; Kanaga et al., 2011; Nor-Afiah et al., 2011). The low level of knowledge and lack of awareness about the breast screening tests can partly explain the delay in presentation of symptomatic breast cancer to health care provider (Abdul et al., 2010). In the study carried out by Redhwan et al. (2011) among 251 female students in Shah Alam, Malaysia, showed that 50%

*[1]Cancer Resource and Education Center, Universiti Putra Malaysia, [2]Department of Community Health, [3]Department of Family Medicine, Faculty of Medicine & Health Science, Universiti Putra Malaysia, Serdang, Selangor, Malaysia *For correspondence: latiffah.latiff@gmail.com*

conducting BSE practice, the majority of participants who never practice BSE mentioned that the lack of knowledge was the main barrier to practicing BSE (Redhwan et al., 2011).

In Malaysia, many efforts had been implemented to improve breast health among young female. But, the general believed is that breast cancer which affects old(er) women and young women do not get breast cancer (Johnsona and Dickson, 2008). However, young women presented breast cancer at higher stages, where these cancers were more aggressive than those of older women (Hadi et al., 2010). Hence, the purpose of this study was to identify the level of knowledge about breast cancer and BSE practice among female undergraduate students in Klang Valley, Malaysia.

Materials and Methods

Study design

This cross sectional study was conducted among 820 female undergraduate students between January and April 2011. Data was collected using a simple random technique in four public universities, namely, University of Malaya (UM), Universiti Putra Malaysia (UPM), National University of Malaysia (UKM), Universiti Technologi MARA (UiTM) in Klang Valley, Malaysia. In all 792 (96.5%) undergraduate students agreed to participate and gave informed consent. Participants who had less than 20 years old, pregnant and breast feeding were exclude from this study. This study got approval from Scientific Research Committee Universiti Putra Malaysia and the Ministry of Education Malaysia.

Instrument

Data was collected through a validated and reliable self-administered questionnaire. The reliability of the questionnaire was determined by using test-retest reliability conducted among 80 undergraduate female students at Universiti Putra Malaysia not included in the study. The value of kappa for categorical data ranged between; risk factors in breast cancer (0.52 - 0.97), symptom of breast cancer (0.70 - 0.97), CBE and mammography (0.80 - 0.90) and knowledge of BSE (0.70 - 0.87).The questionnaire included three parts: *i)* Socio-demographic characteristics of respondents included: age, marital status, religious, race, family history of breast cancer and attendance at previous breast cancer education program and source of information for breast cancer. *ii)* Breast cancer and breast screening knowledge: This part included 41 questions about risk factors of breast cancer, symptoms of breast cancer, mammography, CBE, and breast self-examination. Respondents were given one point for answering true and zero for answering false or do not know. The knowledge level was categorized as "low" for scores within 0-49%, "moderate" for scores within 50-79% and "high" for scores within 80-100% (Lamport and Andre, 1993). *iii)* Practice related to breast self-examination: It was assessing through having the correct knowledge on doing BSE, there was 3 items for assessing it (practice BSE, correct time and frequency for doing BSE) and reasons for reluctance to perform BSE.

Statistical analysis

Analysis was performed by using PASW Statistics 20.0 program. Descriptive statistics (means, standard deviation, frequencies, and percentages) were obtained for all continues and categorical variables. Chi square test was used to determine association between categorical variables and BSE practice, and for continius variable independent sample t-test was applied. logistic regression analysis was executed to achieve the best predictor(s) for BSE practice among female undergraduate students. Significance level was set as $\alpha<0.05$ for all the variables in the analysis.

Table 2. Correct Knowledge About Breast Cancer and Breast Cancer Screening (n=792)

Items	Correct response Freq. (%)
Risk factors of breast cancer	
Age	518(65.4)
Family history of breast cancer	594(75.0)
Pregnancy at late age	297(37.5)
Diet and lifestyle	364(46.0)
Obesity after menopause	248(31.3)
Hormone replacement therapy	241(30.4)
Oral contraceptives	267(33.7)
Alcohol drink	275(34.7)
Symptoms of breast cancer	
Breast Lump	582(73.5)
Swollen axillary glands	249(31.4)
Nipple retraction	204(25.8)
Bloody nipple discharge	377(47.6)
CBE & Mammography	
Appropriate age to initiate CBE	178(22.5)
Optimal time CBE	149(18.8)
Mammography is useful method to diagnosis breast cancer	333(42.0)
Breast self-examination	
Appropriate age to initiate BSE	374(47.2)
Best time for performing BSE	234(29.5)
Name of different position for doing BSE	335(42.3)
Correct palpation technique for BSE	136(17.2)

Table 1. Knowledge about Breast Cancer and Breast Cancer Screening (n=792)

Parameters	Level of Knowledge			Mean±SD
	Low Freq. (%)	Moderate Freq. (%)	High Freq. (%)	
Risk factors of breast cancer	394 (49.7)	153 (19.3)	245 (30.9)	4.7±1.7
Symptoms of breast cancer	496 (62.6)	206 (26.0)	90 (11.4)	3.8±1.4
CBE & mammography	318 (40.2)	235 (29.7)	239 (30.2)	2.7±1.0
Breast self-examination	397 (50.1)	265 (33.5)	130 (16.4)	6.2±2.2
Overall knowledge on BC & BSE	405 (51.1)	267 (33.7)	120 (15.2)	11.3±2.9

Table 3. Comparison Knowledge Scores of BC, BSE with Breast Self-examination Practice among Respondents (n=792)

Knowledge of breast cancer	Performing BSE (n=155)(Mean±SD)	Not performing BSE (n=637)(Mean±SD)	T value	Pvalue
Risk factors breast cancer	4.75±1.92	4.72±1.74	-0.18	0.85
Symptoms of breast cancer	3.87±1.38	3.78±1.48	-0.71	0.47
CBE & mammography	2.81±0.93	2.77±1.04	-0.45	0.64
Breast self-examination	6.89±1.89	6.05±2.32	-4.15	0.00*

*Significant at level p<0.05

Table 4. Logistic Regression Analysis of Variables for Performing BSE (n=792)

Variables	B	SE	Wald	p-value	OR	95%CI
Age (year)	0.33	0.07	17.98	0.00*	1.39	1.19-1.62
Marital status	0.45	0.45	0.97	0.32	1.56	0.64-3.83
Doctor trained you to perform BSE	0.67	0.20	11.26	0.00*	1.96	1.32-2.91
Knowledge of BSE	0.14	0.04	10.75	0.00*	1.15	1.06-1.25
Constant	9.79	1.74	31.59	0.00	0.00	

*Significant at level p<0.05, B: Coefficient; OR: Odds Ratio; CI: Confidence Interval, Nagekerke R2=0.10

Results

Socio-demographic characteristics

The age of participants ranged between 20 to 25 years old (mean 21.7 (SD=1.20). Most of the participants were Malay 728 (91.9%), Muslims 749 (94.6%) and single 767 (96.8%). Approximately 24% of the participants trained by doctor for doing BSE, 249 (31.4%) had attendance at previous breast cancer education program and 16.5% of the participants reported having a family history of breast cancer.

Breast self-examination practice

Although 99.5% of respondents hear/read about breast cancer, only 155 (19.6%) of them practice BSE. Of those women practice BSE, most of them performed BSE annually 82 (52.9%). Lack of knowledge about how to perform BSE 400 (62.8%) was the main reason for not performing BSE. Other reasons included: not necessary 80 (12.5%), no time for BSE 60 (9.4%), forgetfulness 30 (4.7%), fear of finding a mass 27(4.2%), dislike touching breast 25 (3.92%) and no breast complaints 15 (2.3%).

Also, there were significant association between performing BSE and age (t=-4.61, p=0.00), marital status (χ^2=4.42, p=0.01), trained by doctor for doing BSE (χ^2 =19.18, p=0.01).

Among the respondents, 788 (99.5%) of them had heard or read about breast cancer and the most popular sources was mass media 300 (38%), followed by printed materials, 200 (25.3%), doctors 130 (16.5%), and family and friends 90 (11.4%) and Internet 78 (9.9%).

Knowledge on breast cancer and breast cancer screening

The fourty-one questions on knowledge of breast cancer included: risk factors, symptoms of breast cancer;and breast cancer screening (CBE, mammography and BSE). The highest percentage of knowledge related to risk factors of breast cancer 245(30.9) and the lowest rate related to symptoms of breast cancer 90(11.4) (Table 1).

Table 2 shows that 75% of respondents knew about relationship between family history of breast cancer and breast cancer. Regarding other risk factors, only 30.4%, 31.3% of respondents knew there are assosiation between use of hormone replacement therapy (HRD) and obesity after menopause with incidence of breast cancer, respectively. Regarding the sign and symptoms of breast cancer, 73.5% and 25.8% of respondents knew that lump in breast and nipple retraction were not normal, respectively.

With regards to screening methods 42% of participants knew mammography is effective way to detect breast cancer, but 17.2% of students answer correctly question about the correct palpation techniques for doing BSE. Nearly half percentage (47.2%) of students knew about the appropriate age for doing BSE.

Average responses to the items on the knowledge scales (risk factors, symptoms of breast cancer, CBE and mammography and BSE) are presented in table 3. Only there was significant association between performing BSE with knowledge score of BSE (t=-4.1, p=0.00) at (p value<0.05).

Table 4 shows the logistic regression analysis for predicting BSE performance. The results shows that the respondents who had trained by doctor 1.96 (95%CI: 1.32-2.91) times more likely to practice BSE, and women who had knowledge of BSE 1.15 (95% CI: 1.06-1.25) times more likely to practice BSE.

Discussion

In Malaysia, breast cancer is the most common cancer among females (National Cancer Registry, 2008). Delay in the detection of breast cancer decreases survival rates (Yip et al., 2006). Based on the evidence, there is doubt as to the usefulness of BSE in diagnosis of breast cancer (Smith et al., 2003). However, the American Cancer Society and the Malaysian Clinical Practices Guideline encourage women to practicing BSE, because it allows a woman to be familiar with her normal breast structure and helps her to learn to notice any unusual changes in her breast tissue (American Cancer Society, 2012; Ministry of Health Malaysia, 2002). In Malaysia, it is recommended that BSE is done once a month and all females above 20

years old must be educated for BSE practice (Ministry of Health Malaysia, 2002).

In the present survey, most respondents heard/read about breast cancer (97%) but only 19.6% of respondents performed BSE. This may be explained by the fact that our participants were young women and not feeling that they are at risk for breast cancer. These findings are support by Akhtari-Zavare et al. (2014) that reported 97% of the participants heard about BSE, only 26% stated that they performed BSE and most of them doing BSE annually 53 (13.8%).

The relationships between socio-demographic variables and practicing BSE are contradictory. Previous researches suggested that the difference in practicing BSE was related to socio-economic status (Montazeri et al., 2008; Redhwan et al., 2012). The result of this study showed not significant relationship between race, religious, family history of breast cancer and BSE practice. Richard et al. (2011) reported there was positive association between family history of breast cancer and BSE practice among Malaysian women (OR=1.09, 95%CI=1.05-1.14). A study conducted by Manas Kotepui et al. (2014) showed age and marital status significantly influenced on performing BSE. Similarly, in current study, age and marrital status were found to be significant for breast self-examination practice. These may be due to the fact that married women were more exposed to health care facilities and health care professionals. Furthermore, a study of Malaysian female students found that there was a significant relationship between marital status and age with respect to women's BSE practices (Radman et al., 2012).

Our findings show that media were the main source of information for BSE. These findings are supported by Akhtari et al. (2013) that stated radio and television as the main sources of information for breast cancer and BSE practice among female students at University Putra Malaysia, in Malaysia. Another similar study found that nearly half of the respondents reported their main sources of information on breast cancer and BSE was the media (Gurdal et al., 2012). This support the effectiveness of the media in changing behavior and promoting public education among the general population. In contrast, Manas et al. (2014) showed most of the participants obtained their information about breast cancer from health personnel (58.5%) and Internet (47.5%).

Our finding show that, most of the participants had low level of knowledge about risk facors of breast cancer (49.7%), symptoms of breast cancer (62.6%), CBE & mammography (40.2%) and breast self-examination (50.1%). Our findings agree with the previous study which shows that in Malaysia and the world at large, many university students are unaware of BSE practices, as well as the risk factors and early signs of breast cancer (Benford et al., 2012). Hence, it is necessary to provide more comprehensive breast health awareness programs for adolescents and young women. Also, this poor knowledge is not surprising, given that among Asian women, topics related to cancer and the female body is taboo issues, particularly among older women (Sim et al., 2009). Therefore, most Asian women have low level of knowledge about breast cancer compared to Western women.

In the present study, 73.5% of the respondents knew breast mass is one of the symptom of breast cancer, 47.6% answered correctly the questions about bloody nipple discharge, and 25.8% about nipple retraction. These findings are supported by Rabia, (2014) that stated 55.3% of the participants knew that a breast lump could be a warning sign of breast cancer and 34.7% knew about bloody nipple discharge. In another study among female teachers in Selangor, Malaysia, only 61% and 16.6% knew that breast lump and nipple retraction could be warning signs of breast cancer, respectively (Parsa et al., 2008).

Having adequate knowledge of breast cancer risk factors is the essence of primary prevention of breast cancer (Awatif, 2006). This study showed participants had low level of knowledge about risk factors of breast cancer. The most identified risk factors were age (65.4%) and having family history of breast cancer (75%). Majority of participants did not know the effect of use of oral contraceptives (33.7%), use of HRT (30.4%), drinking alcohol (34.7%) and obesity after menopause (31.3%) on breast cancer. These findings are supported by Karadag et al. (2014) stated more than half (62%) of respondents had low level of knowledge on risk factors of breast cancer. Consequently, there is a need to provide health educational program for improving knowledge of breast cancer among young female.

Another important reasons for delay in presentation of breast cancer is the low rate of breast cancer screening and BSE practice (Naif et al., 2012). In the present, very low percentage of respondents (17.2%) knew about correct palpation technique for BSE, appropriate age to initiate CBE (22.5%). This may be due to the poor community base awareness and screening program of BSE among young female in Malaysia.

Our finding showed that knowledge of BSE was associated with performing BSE ($t=-4.15$; $p<0.001$). The mean knowledge score of BSE is higher among respondents who performed BSE compared to those who did not. This is consistent with previous finding suggesting that knowledge of breast self-examination is an important facilitator for breast self-examination practice (Parsa et al., 2011). According to Gok et al. (2009) knowledge of BSE is one of the factors effects on performing BSE, those who had the higher knowledge of BSE more likely to practice BSE.

Results of this study may not representative the actual BSE practice among all Malaysian women because it focused on young educated women. Further research is recommended using large sample size with different ages, sociodemographic groups and occupational backgrounds.

In conclusion, the study indicates that the knowledge of female students about breast cancer are insufficient and showed the negative effect of low knowledge on the BSE practice. Therefore, a breast health awareness campaign among young female is necessary to improve their knowledge about breast cancer and BSE practice and learn them to report any abnormalities in their breast to the healthcare workers.

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