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A Pilot Study Evaluating Health Literacy towards Breast Cancer among Multiethnic Students

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ABSTRACT

The main aim of this study was to evaluate and compare the knowledge, attitudes and perception about breast cancer among   students from different ethnic groups. A qualitative study was conducted among the multiethnic students at a Malaysian public university in Penang Island. The ethnic groups which were approached were Malay, Indians, Chinese, Arabs and Thais. On an average, fifteen students from every group was a part of the study. A questionnaire was used to evaluate the respondents' knowledge about the symptoms, causes and the treatment of breast cancer. A self designed 15 items questionnaire was used to achieve the objective of the study. A total of N=125 students were approached for their participation in the study. However, only n=102   showed a willingness to be a part of the study. The mean age of the respondents was 24±4.46. Overall, the findings demonstrated that the Thai students had comparatively better knowledge than the other groups. In terms of diagnosis,   mammography and physical examination were recommended by a majority of the students. Surgery and radiation therapy were the preferred options to treat breast cancer. Thai students had good knowledge about the symptoms of breast cancer. However, the knowledge level towards the diagnosis of breast cancer was best among the Malays and the Arabs. Overall, the findings highlighted the need of further educational sessions among all the groups for the substitution of negative perceptions with positive and evident beliefs about the symptoms, causes, prevention, diagnosis and the treatment of breast cancer.

Key Words: Breast cancer, Knowledge, symptoms, diagnosis, treatment

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Introduction

Breast cancer is one of the most common cancers among females worldwide. Global statistics show that the annual incidence of breast cancer is increasing and this is occurring more rapidly in countries with a low incidence rate of breast cancer [1],[2]. It has been reported that each year, over 1.15 million women worldwide are diagnosed with breast cancer and 502,000 die from the disease [3]. Among Malaysian women, breast cancer is the most common cause of death [4],[5]. In the year 2000, there were approximately one million registered cases of breast cancer worldwide, with estimated deaths of over three hundred and seventy

thousand women. The incidence of breast cancer was highest in the developed countries, with an average estimate of 94.9 per 100,000. However, among less developed countries, it was about 19.66 per 100,000 [6]. The prevalence of breast cancer was highest in North American women, with approximately 10 in hundred women at a risk of developing breast cancer [6].

In the year 2000, about 3825 new cases of breast cancer were reported in Malaysia, with deaths of about one thousand and seven hundred women. The incidence was estimated to be 34.86 per 100,000 populations [6]. Still, the Ministry of Health, Malaysia, was unaware of the actual incidence rate of breast cancer. The possible factor playing a vital role in this regards are lack knowledge and awareness about breast cancer, which further leads to underreporting [6]. Moreover, lack of the national breast cancer patients' registry programs was another issue which was associated with the scarcity of the facts.

The Age Standardised Rate (ASR) of female breast cancer among Malaysian women was 47.4 per 100,000 populations. Amongst the Chinese, it was higher at 59.9 per 100,000 population, for the Indians, the ASR was 54.2 per 100,000 and it was lowest in the Malays at 34.9 per 100,000 population. The cumulative life time risk of developing breast cancer for Chinese women, Indian women and Malay women were 1 in 16, 1 in 17 and 1 in 28, respectively. In the past, a high prevalence of breast cancer was seen in the age group of 45 years and above. However, the age of onset is decreasing and more young women than ever are being affected [7]. The onset of breast cancer is more abrupt among young women's cancers, with an aggressive onset resulting in lower survival rates [8],[9]. This immediate onset makes it difficult for the clinicians to diagnose it within time [9]. Keeping in view this motivation, a preliminary study was conducted among the newly registered students at University Sains, Malaysia. The main aim of this

study was to evaluate and compare the knowledge, attitudes and perception about breast cancer among the students from different ethnic groups.

Methods
A pilot study was conducted among the multiethnic students at a Malaysian public university in Penang Island. The ethnic groups approached were Malay, Indians, Chinese, Arabs and Thais. On an average, fifteen students from every group was a part of the study. A questionnaire was used to evaluate the respondents' knowledge about the symptoms, causes and the treatment of breast cancer.

Participants
A convenient sampling method was adopted. Five clusters were defined on an ethnic basis and a total of twenty five students were approached from every cluster. All the new students who visited the institute of graduate studies for registration of their courses on day one (5th July 2009) were a part of the study.

Study Tool
A self designed 15 item questionnaire was used to achieve the objective of the study. Mainly the questionnaire comprised of five sections. Some of the items had some sub-items as well; the description about the study tool is illustrated as follows:

Section one covers the demographical information of the respondents like race, age, marital status, education levels and income status. *Section Two* covers information on the *General knowledge about Breast Cancer.* Three questions were a part of this section.
• Have you ever heard about a disease called Breast Cancer? Y/N
• Where did you hear about Breast Cancer for the very first time?
• Do you think that Breast cancer is a communicable disease? Y/N

Section Three covers the respondents' perception about the risk factors for Breast cancer. Thirteen items were a part of this

section. Details about the items are illustrated in [Table/Fig 1].

(Table/Fig 1) Respondents perception toward risk factors of breast cancer

Risk Factor	Malay 20(19.6%)	Chinese 18(17.6%)	Indian 20(19.6%)	Arab 22(21.6%)	Thais 22(21.6%)	Total N(102)	X^2	p-value
Obesity	10	10	12	12	10	54 (52.9%)	0.518	0.993
Family history of breast cancer	20	16	14	20	18	88(86.3%)	4.264	0.416
Early Adolescents (< 12 years)	4	8	12	4	6	34(33.3%)	5.818	0.056*
Late menopause (> 55 years)	6	14	16	6	14	56 (54.9%)	10.861	0.058*
Smoking can result breast cancer	10	12	14	20	20	76 (74.5%)	8.832	0.006*
Alcohol Use can result breast cancer	12	12	18	6	12	60 (58.8%)	8.851	0.040*
Due to pregnancy after 30 years	6	10	12	8	16	52 (50.9%)	5.184	0.054*
Lack of breast feeding	8	14	14	20	14	70 (68.6%)	6.829	0.331
Due to use of contraceptive	14	18	14	22	18	86 (84.3%)	6.871	0.532
Lack of physical activity	10	12	16	4	16	58 (56.9%)	10.566	0.395
The irritation due to tight bra	14	16	20	16	20	86 (84.3%)	5.030	0.468
Lack of blood flow to the breast	0	12	20	16	16	64 (62.7%)	23.777	0.016*

Section Four comprised of seven items with a main focus on how to prevent Breast cancer. Information about the items used in this section is mentioned in [Table/Fig 2].

(Table/Fig 2) Preventive measure for breast cancer

	Malay 20(19.6%)	Chinese 18(17.6%)	Indian 20(19.6%)	Arab 22(21.6%)	Thais 22(21.6%)	Total N(102)
By reducing fatty diet that elevate cholesterol	14	16	12	8	14	64 (62.7%)
By consuming soy products regularly	6	18	10	12	12	58 (56.9%)
By Taking Multivitamin	6	14	16	12	16	64 (62.7%)
Maintain a healthy body weight (BMI less than 25) throughout your life	14	10	14	10	14	62(60.8%)
By avoid alcohol	14	14	16	8	22	74 (72.55)
Consume as many fruits and vegetables as possible	18	14	18	22	16	88 (86.2%)
Breast self examination can be beneficial to prevent breast cancer	20	18	16	20	22	96 (94.1%)

Section five was concerned with the knowledge about the symptoms, diagnosis and the treatment of Breast Cancer. Six symptoms of breast cancer were presented to the respondents [Table/Fig 3]. In addition to the symptoms, the knowledge about the diagnosis and treatment was evaluated by using two questions which are illustrated as follows:

1- Which do you think is the right way to diagnose Breast cancer?

2- Which of the following do you think is the best way to treat breast cancer?

(Table/Fig 3) Knowledge about symptoms of breast cancer

Symptoms of Breast cancer	Malay 20 (19.6%)	Chinese 18 (17.6%)	Indian 20 (19.6%)	Arab 22 (21.6%)	Thais 22 (21.6%)	Total N (102)
A swelling or thickening in or near the breast	20	14	18	22	22	96
A swelling in the underarm area	20	12	14	22	20	88
A change in the size or shape of the breast	20	18	12	22	20	92
Discharge of fluid from Nipple	16	16	14	12	22	80
The breast skin looks like the skin of an orange	12	6	18	6	18	60
Nipple looks swollen, red, or scaly	18	18	18	12	22	88

Validation and Reliability of the Questionnaire

The content validation was conducted by the professionals at the Department of Pharmacy, Island College of Technology. Fifteen items were finalised and the questionnaire was translated into the Malay language in order to make the questionnaire easier for the respondents to understand it. The translation of the questionnaire into the Malay language was done by the experts at the School of Linguistics, USM. The translation was rechecked by the professionals at the School of Pharmacy in order to check the appropriateness of the word according to the study objectives. After this, to ensure the face validity of the questionnaire, a pilot survey was conducted among the ICT students. A total of twenty students were approached. Keeping in view the responses, the reliability scale was applied and the internal consistency of the study tool was estimated on the basis of Cronbach's Alpha ($\alpha = 0.61$). Furthermore, to assure about the validity of the contents, a factor analysis was carried out. The content validity was estimated by using the Bartlett's test of sphericity and the

Kaiser-Mayer-Olkin measure of sampling adequacy. The results showed that the Bartlett's test of sphericity was significant at 0.0000 and that the Kaiser-Mayer-Olkin measure of sampling adequacy was 0.640. According to Sheridan and Lyndall (2001), a measure of more than 0.6 reflected the adequacy of the contents of the questionnaire [10]. Thus, these results showed a considerable evidence of the reliability and the validity of the sampling tool.

Scoring Of Responses

The responses about the symptoms of Breast cancer were scored in order to classify the knowledge at the sub-level. This classification would provide information about the level of recognition towards Breast cancer and its symptoms. Six items were used to attain the aim of this study. Every right answer added one score to the respondent's knowledge level. The maximum possible score for these items was six. For the better comparison of the knowledge, scoring of the responses was done. Quartiles were applied for the classification of the knowledge. Classifications of the knowledge according to quartiles are mentioned as follows [Table/Fig 4].

(Table/Fig 4)

Score	Knowledge classification
0-3	Poor
4	Moderate
5	Good
6	Excellent

Data analysis

For the purpose of data analysis, the Statistical package for Social Sciences (SPSS13.0®) was used. In order to find the association of knowledge with demographic variables, the Chi-square test was applied, where 20% of the cells had an expected count of less than five. Fischer exact statistics was applied. However, in order to compare the knowledge level among the ethnic groups, One way *ANOVA* was used. Moreover, to

identify the differences among the different racial groups *Post-Hoc* analysis was conduced.

Results

A total of N=125 students were approached for their participation in the study. However, only n=102 showed a willingness to be a part of the study. The mean age of the respondents was 24±4.46. Details about the demographical characteristics of the respondents are illustrated in [Table/Fig 5].

(Table/Fig 5) Demographics of respondents

Characteristics	N	%
Total participants	102	
Race		
Chinese	18	17.6
Malay	20	19.6
Indian	20	19.6
Arab	22	21.6
Thais	22	21.6
Age (Range 19-37 years) (Mean=24± 4.4SD)		
19-24	64	62.8
25-29	18	17.6
30-37	20	19.7
Marital Status		
Single	70	68.6
Married	32	31.4
Educational Level		
Secondary	8	7.8
University	94	92.2

General knowledge about breast cancer

Exploration revealed that a majority - 98(96.1%) has heard of a disease called breast cancer. About 64(62.7%) of the respondents disclosed that they had heard of breast cancer from television programs. However, 18(17.6%) disclosed that friends and family were the source of their knowledge. Nearly a half- 50(49.0%) believed that breast cancer was a transmittable disease. Further exploration on ethnic grounds revealed that a majority- 16(15.7%) among these were Malays, followed by Thais -12(11.8%), Indians- 10(9.8%) and Chinese and Arabs - 6(5.9%).

Perception regarding the risk factors and preventive measures for breast cancer

Findings demonstrated that lack of blood flow to the breast, early adolescent (< 12 years), late menopause (> 55 years) and pregnancy after 30 years were the mainly identified risk factors of breast cancer. The respondent's perceptions in this regard are illustrated in [Table/Fig 1]. A majority of the respondents believed that the use of vegetables and fruits and the avoiding of alcohol use could be the preventive measures for breast cancer [Table/Fig 2].

Knowledge about Symptoms of Breast Cancer and the Diagnosis and Treatment of Breast Cancer

Overall, knowledge evaluation revealed that a swelling or thickening in or near the breast, a swelling in the underarm area and change in the size or shape of the breast were the frequently recognised symptoms of breast cancer [Table/Fig 3].Findings demonstrated that the Thai students had a comparatively better knowledge about the symptoms of breast cancer than other groups [Table/Fig 6]. However, further evaluation through post hoc analysis revealed significant knowledge differences between the Thai and Arab students [Table/Fig 7]. In terms of diagnosis, mammography and physical examination were recommended by a majority of the students [Table/Fig 8]. Surgery and radiation therapy were the preferred options to treat breast cancer [Table/Fig 9] ..

(Table/Fig 6) Knowledge difference on ethnic grounds

Score Race	0-3 Poor	4 Moderate	5 Good	6 Excellent	F	p
Malay	2	2	4	12		
Chinese	2	4	10	2	2.691	0.043*
Indian	2	6	6	6		
Arabs	6	8	2	6		
Thais	2	2	4	14		

One way ANOVA,

(Table/Fig 7) Multiple comparisons among ethnic groups

Race	Comparison with	p-value	CI 95%
Malay	Chinese	0.673	-.7169 - 1.9836
	Indian	0.695	-.7142 - 1.9142
	Arabs	0.250	-.3477 - 2.2204
	Thais	0.945	-1.6204 - .9477
Chinese	Malay	0.673	-1.9836 - .7169
	Indian	1.000	-1.3836 - 1.3169
	Arabs	0.966	-1.0178 - 1.6239
	Thais	0.244	-2.2905 - .3512
Indians	Chinese	1.000	-1.3169 - 1.3836
	Malay	0.695	-1.9142 - .7142
	Arabs	0.945	-.9477 - 1.6204
	Thais	0.250	-2.2204 - .3477
Arabs	Chinese	0.966	-1.6239 - 1.0178
	Malay	0.250	-2.2204 - .3477
	Indians	0.945	-1.6204 - .9477
	Thais	.045*	-2.5258 - -.0197
Thais	Chinese	0.244	-.3512 - 2.2905
	Malay	0.945	-.9477- 1.6204
	Indians	0.250	-.3477 - 2.2204
	Arabs	0.045*	.0197 - 2.5258

(Table/Fig 8) Knowledge about diagnosis of breast cancer

Race	Mammography	Ultrasound	Physical examination	Biopsy
Chinese	8	2	8	0
Malay	16	2	2	0
Indian	6	2	10	2
Arab	16	0	4	2
Thais	4	12	4	2
Total	50	18	28	6

(Table/Fig 9) Knowledge about treatment of breast cancer

Race	Herbs	Hormone therapy	Radiation therapy	Surgery
Chinese	0	0	2	16
Malay	4	2	4	8
Indian	4	0	6	10
Arab	0	0	0	22
Thais	0	2	6	14
Total	8	4	18	70

Discussion

Of the few studies which were carried out to determine women's knowledge on the lifetime risk of breast cancer, the majority were conducted on those with a family history [11] , [12]. In these studies, every third women had overestimated the risk. However, the current study was undertaken to evaluate young women's knowledge about the symptoms, risk factors, causes and the diagnosis of breast cancer among different ethnic groups. Five ethnic groups were a part of this study i.e Malay, Chinese, Indians, Arabs and Thais. Findings demonstrated a significantly (p=0.043) excellent knowledge regarding the symptoms of breast cancer among Thai

students. However, a poor knowledge level was observed among the Arab students [Table/Fig 6].   Swelling or thickening of the breast was the most commonly recognized symptom of breast cancer by all groups [Table/Fig 3]. In terms of the evaluation of the respondents' perception regarding the prevention of breast cancer, a majority (94.1%) of the respondents believed that breast self examination (BSE) could prevent breast cancer. This statement reflected the negative insight of the respondents; BSE can be helpful only in early diagnosis and treatment. A majority - 22(21.65%) of the Arab and Indian students recommended the excessive use of fruits and vegetables as preventive measures for breast cancer. However, the use of soya and soya products was highly recommended by the Chinese participants. The use of soya and soya products can be a preventive measure because their high iso-flavone and phytoestrogen contents play a vital role in minimizing the risk of breast caner.

In addition to the knowledge about the symptoms of breast cancer, the perception regarding the risk factor is another vital issue to be explored. Overall, a majority - 86.3% of the respondents stated that family history was the most potential risk factor for breast cancer. However, segregation of the responses on ethnic grounds revealed that a majority of the Chinese and Arab respondents has stated contraceptive use as a risk factor for breast cancer. Indians reported that irritation due to a tight bra and lack blood flow to breast were the factors which led to breast cancer. On the other hand, Thai students held   smoking responsible for the progression of breast cancer. These findings are in compliance with the findings of World Cancer Research Fund that report similar behaviour in their study [13]. However, comparatively, Malay, Chinese and Indian students were found to have a lack of awareness about the symptoms and risk factors of breast cancer.   The public health department is playing its part through educational

programs on media. However, educational sessions at the school and college levels can be helpful to reduce these knowledge gaps.

The knowledge about the diagnosis and treatment of breast cancer are the other two important aspects of the knowledge domain. Evaluation of the respondents' knowledge about diagnosis revealed that 50 (49.0%) of the respondents had recommended mammography, followed by physical examination. Arabs and Malays were found to have a better knowledge regarding the diagnosis of breast cancer. However, Thai students had poor knowledge regarding diagnosis, as a majority   recommended ultrasound as the diagnostic method. In terms of treatment, surgery was   recommended by the majority, followed by radiation therapy. About 8(7.8%) of the respondents recommended the use of herbs to treat breast cancer. A majority among these were Malays and Indians. It was quite disappointing to discover that the Malays and the Indians had beliefs on the use of traditional and herbal therapies to treat breast cancer. Though this survey was conducted among   healthy individuals, however, it reflected   that these respondents were at high risk. Previous findings provided evidence that 20.4% of the patients defaulted proper treatment and follow-up. The reason for this behaviour was the use of alternative or traditional medicine to treat breast cancer. Similarly, surgery was the least recommended treatment for breast cancer by the Malays. These findings complied with the findings of Leong et al (2009) [14]. Leong et al (2009), reported that surgery was the treatment which was most commonly refused by the Malay women. The findings of our study somewhat proved the findings of Leong et al (2009), because nearly half of the Malay respondents did not recommend surgery as an option to treat breast cancer. Cosmetic and cultural factors can contribute to this behaviour, because Malay women felt that their role as a wife, mother and female as a whole, would be seriously jeopardised if they had

breast cancer and surgery. They were worried that their husbands would leave them and their children and would love them less as a mother. Thus, a strong sense of denial would normally develop as a protective mechanism against such a threat [14]. They feared that surgery would disturb the tumour and cause it to grow and spread faster [14]. Moreover, a lack of awareness with a wrong social and cultural perception of breast cancer have been associated with advanced disease at presentation [15],[16]. Due to a strong traditional influence and fear of surgery, many women would initially seek traditional or alternative treatment, such as "bomoh" or faith healing, before they presented to the hospital. It was reported by Taib et al that between 15.5% and 45.3% of Malaysian women with breast cancer sought traditional treatment before they attended the breast clinic [17]. Traditional and alternative therapies are freely available in Malaysia. Advertisement boards and banners promoting such therapies can easily be seen at common public places in Malaysia.

Conclusion

Thai students had good knowledge about the symptoms of breast cancer. However, the knowledge level about the diagnosis of breast cancer was best among the Malays and the Arabs. Overall, our findings highlight the need of further educational sessions among all groups for the substitution of negative perceptions with positive and evident beliefs about the symptoms, causes, prevention, diagnosis and treatment of breast cancer.

Limitations

Small sample size can be one of the main limitations of this study. However, the facts provided by this study are valuable enough for the public health policy makers to conduct more methodologically strong studies in order to further explore the knowledge, attitudes and the perception about breast cancer among the various ethnic groups in Malaysia.

Recommendation

In both the local and the international scenario, a majority has focused on women's knowledge regarding Breast self examination. Knowledge about the symptoms, causes, risk factors, diagnosis and beliefs about the treatment and help seeking are the gaps which need to be filled in by future research efforts.

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