

Breast Cancer Screening Practice: Early Detection Saves Lives

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Abstract

Introduction: Breast cancer is the most common cancer among women. The most recent estimate indicated that more than 1.6 million new cases of breast cancer occurred among women worldwide in 2010.

Aim: To assess the level of awareness on breast cancer screening practice among women in Muar.

Methodology: It was quantitative survey done on 383 respondents from Jalan Bakri, Muar where the participants aged from 18-80. This was a descriptive, cross-sectional study using two-step sampling methods which are cluster sampling and simple random sampling. Data analysis including descriptive statistics was used to describe participants' socio-demographic characteristics using tables, graphs, percentages and chi-square was used to present the results.

Result: The knowledge among women in Muar is (52.38%) indicating that they have poor knowledge on breast cancer screening. There is significant association between the monthly household income and level of education on breast cancer screening practice. Respondents in the group 1 (18-25), group 2 (26-31) and group 3 (32-37) performs breast self-examination within the range of 50-60% only. The practice of clinical breast examination and mammogram among group 5 (44-50) and group 6 (>50) women is only within the range (20-50%).

Conclusion: The survey result proved that there is very poor knowledge among the woman regarding the breast cancer screening practice. Moreover, there is association between socio-demographic between income and education on breast screening practice. Lastly, the compliance of breast cancer screening practice among women in the Muar district is very low.

Recommendations: Health campaign and also health talk is the excellent platforms for them to get knowledge regarding the breast cancer. Other than that, we must educate the community with low level of education to increase their knowledge about breast cancer screening. Educate them with the basic steps of the breast self-examination. We should give the chance for the newly graduate medical student to organize few health intervention programme in urban area.

Keywords: Breast cancer; Awareness; Compliance

Background

Breast cancer is the most common cancer among women. The most recent estimate indicated that more than 1.6 million new cases of breast cancer occurred among women worldwide in 2010. Breast cancer is the most frequently diagnosed cancer in the world and the leading cause of cancer death in women, with an estimated 1.7 million new cases recorded in 2012 (Ferlay, 2014). Every 60 seconds, somewhere in the world, someone dies from breast cancer. At the current rate, 13 million breast cancer deaths around the world will occur in the next 25 years (World Cancer Research Fund International). When we look specifically in Malaysia the number according to Dr Patricia Gomez in Second Women's Health Summit 2014 Malaysia, the incidence of cancer in the country was increasing at an alarming rate from 32,000 new cases in 2008 to 37,000 in 2012 with the number expected to go up to 56,932 by 2025 if no action is taken. With over three million women are battling breast cancer today worldwide, it is worrying. If the disease is diagnosed earlier, the chances of survival is good (Panirchellum, V. (14 October, 2014).

Determination of barriers of breast cancer screening among women is important in medical field. This is due to many woman are hesitant to go for the breast cancer screening. By determining the barriers of the breast cancer screening, we can reduce the incidence of breast cancer and increase awareness among women. The incidence rate of breast cancer increment in Malaysia causing increase in mortality rate and this is an alarming sign for Malaysian.

Problem of Statement

Demographical factor such as race, age, marital status, level of education, employment status and income, access to health care, health insurance or primary care physician and engagement in healthy life style [1] influences the breast cancer screening rate however, demographic variable [2] have been found to predict breast cancer screening rate. Mammography [3] is the only screening test that aid in early detection of the breast cancer meanwhile, early detection of breast cancer can be achieved by performing breast self-examination (BSE), clinical breast examination (CBE) and mammography [4]. Culture believe and attitude [5] play a central role in inhibiting or promoting breast cancer screening while cognitive, social or cultural barriers [6] influence cancer screening and treatment particularly among minority and lower income population

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Objective of Study

General objective

To assess the breast cancer screening practice among women in Muar, Johor, Malaysia.

Specific objective

- To evaluate the level of knowledge of women population about breast cancer.
- To determine the relationship between socio-demographic (race, age, marital status, education, employment status, monthly income) and breast cancer screening practice.
- To assess level of compliance of breast cancer screening practice according to age group among woman.

Significance of the study

Screening of breast cancer in a community will reduce the likelihood of breast cancer and reduce the mortality rate of breast cancer. It is essential for health workers or professional such as doctors, nurses, health officers and health educators to educate and give awareness to the community at risk regarding the breast cancer screening. The need to emphasise the barriers of breast cancer screening among the population in MUAR will enable us to overcome the barriers and inculcate knowledge about breast cancer screening importance. Moreover, recognising the breast cancer screening barriers will remove the false perception about breast cancer among population. It will also encourage the community to do early breast cancer screening to prevent it. This study will contribute to the present researchers by revealing and clarifying the barriers faced when conducting the breast cancer screening in a population by providing the knowledge of population, social demographic towards breast cancer screening and compliance.

Review of related Literature

Recent studies in Senegal, Angola and Nigeria by Okoronkwo et al. [7] revealed a high level of knowledge which was 70.8% on breast cancer screening practice knowledge and practice about breast cancer screening in women referred to Qouds Maternity Hospital in Zahedan, Iran was poor which was about 67.4 that the level of knowledge of women in Ibadan, South West, Nigeria was poor which is about 29.2% whereas Sadler GR mention in his research that the majority of these women reported that their breast cancer knowledge is inadequate which was 70%.

According to Ghandhi et al. [1], he stated that several factors such as demographic factors which include level of education, employment status, and marital status influence the breast cancer screening rate. However, Miller et al. [2], stated that only demographic variable which includes age, marital status and race have been found to predict breast cancer screening rate.

According to Elobaidet al. [8] stated that almost half (44.8%) of women who never had a Clinical Breast Exam (CBE) and 44.1% of women who never had a mammography.

Health Theories and Breast Cancer Screening

There are many health theories or models that explicate the different aspects of health-related behaviours. We believe that the most frequently cited theories in studies of breast cancer screening in Asian countries are

- i) Health Belief Model,

- ii) Social Cognitive Theory,

- iii) Theory of Reasoned Action and Theory of Planned Behaviour.

Health belief model

The 'Health Belief Model' is a prominent and psychological model which has been frequently used in health behavior researches among various ethnic groups in Asia. The severity of a the person's susceptibility to that illness, potential illness and the advantages of taking a preventive action and the barriers to taking that action are four pertinent constructs in the model.

The model includes cues to action as an essential component to maintain patterns of behaviour. Over the past thirty years, this model had become one of the most highly used approaches in understanding women's involvement in breast cancer screening practice. The health belief model had been widely studied by plenty of researchers and authors in investigating women's attitude in mammography.

Furthermore, Karma and Stitch[9] stated that significant beliefs allow an improved knowledge of the cultural perspective which influence the people's behaviour. Few researchers found out there is a relationship between breast cancer screening, like mammography and women's beliefs [10]. For breast cancer screening like mammography, beliefs refers to the place of screening and knowing the time and other information like transportation and setting up for work leave are factors that will shoot up the mammography practice among women.

As an example, in Asia like Turkey, Korea and Iran the belief in the advantages of screening among women are positively related with early detection behaviours. However, women in Asia always adopt a lower position which can cause reduced beliefs in the benefit of early detection and ignore their health care needs.

Social cognitive theory

In 1977 the third theory which is social Cognitive Theory was brought up by Bandura and Adams. This theory of self-efficacy is regarding about the one who can successfully perform the behaviour required to bring up the outcome and holds that self-efficacy expectancies serve as a primary mechanism guiding towards social behaviour. Self-efficacy is the belief in one's own ability to do something.

Individual's faith in his or her ability to participate in specific behaviours are related to the component of self-efficacy which was added to health belief model in order to improve the model's power in order to explain people's behaviour. In addition, a positive relationship has been discovered between breast self-exam and self-efficacy. Self-efficacy is positively associated with attendance at the breast screening exercise. Self-efficacy is also considered to be a significant variable for mammography screening. In 1977, we observed that low self-efficacy shows avoidance behaviour among people and in contrast, high self-efficacy tends to result in initiating behaviours to overcome personal obstacles like fear.

Theory of reasoned action

In this theory a person's behaviour is defined by his/her intention to the behaviour. They also examined ways to predict behaviour and outcome. They accepted that individuals are usually quite rational and they first adopt useful information and consider the implications of their actions before they decide to take on or not to take on in a given behaviour.

However, previous study explained low association between attitudes and behaviour. Whereas, some authors have found that

subjective norm was a significant factor of behavioural intention. For example, women who did not adhere to screening guidelines for breast self-exam or clinical breast exam reported less social support.

As studies shown, women in Korea, Malaysia, Iran and Singapore, did not view the importance of early detection, and this influences their attitude and intention towards breast cancer screening. However, social influence is a significant contributor of behavioural intention in health issues.

Methodology

Site of the study

Random number generator has picked Jalan Bakri as the site of this study from 11 districts of Muar, Johor.

Survey method

The study was a quantitative survey aimed to assess the level of breast cancer screening practice of the participants.

Study design

This was a descriptive, cross-sectional study which was conducted in Jalan Bakri, Muar, Johor, Malaysia.

Population and sample

The total population of Muar women was 113,971. The respondents that participated in this study were aged 18-80 (Figure 1).

Study period

From 11.11.2016 to 16.12.2016

Sample size

A computed sample size of 383 respondents was required to fulfil the objective of the study at a 95% confidence level assuming 5% of confidence interval.

$$ME = z (\sqrt{p(1-p)}) / n$$

- ME is the margin of error
- z is the z-score, e.g. 1.645 for a 90% confidence interval, 1.96 for a 95% confidence interval, 2.58 for a 99% confidence interval
- p is estimated proportion of success
- n is the sample size

$$ME = 0.05, z\text{-score} = 1.96, p = 0.5$$

$$n = p(1-p) / (ME/z)^2$$

$$= 0.5 * 0.5 / (0.05 / 1.96)^2$$

$$= 383 \text{ participants}$$

Sampling method

Jalan Bakri was chosen among the 11 districts in Muar by cluster sampling. Then, a total of 9 residential areas in Jalan Bakri were selected by random sampling. Each members of the selected household was given a questionnaire to complete.

Data Collection

Data collected using a validated questionnaire where the participants were required to answer questions about the knowledge, breast cancer risk and breast cancer screening practice. This questionnaire section took about 5 minutes to be completed.

Questionnaire Design

The questionnaire which was used in the survey was based in Malay and English medium. The Malay medium questionnaire was validated by an expert Bahasa Malaysia teacher. It was a 26 item questionnaire which concentrated on socio-demographic information, knowledge, and breast cancer risk and breast cancer screening practice.

Data Analysis Procedures

The collected data was filled and interpreted using PASW Statistics Student Version 18. Data analysis including descriptive statistics was used to describe participants' socio-demographic characteristics and tables, graphs, percentages was used to present the results. Chi square was used for analytical statistic to describe the association between the sociodemographic factors and breast cancer screening practice.

Content validity was done by the experts in Surgery, Pathology and Gynecology field. The Content Validity Index (CVI) was 0.721. Face validity was also done. Internal Consistency Reliability was done by computing the Cronbach's alpha and was 0.737 (>0.70) therefore it was reliable.

Ethical Considerations

The study was approved by the Medical Research Ethics Committee (MREC) of Asia Metropolitan University, Selangor, Malaysia. Only who were willing to join the research were chosen as samples. Participants' informed consent was taken from the individual and written consent was obtained. The participant's signature indicates that they had read and understood the information regarding this research study and consent to allow us to conduct this study. All the information they provide was kept confidential.

Survey Instrument

Data was collected by using a modified questionnaire which was adopted from the Virginia Polytechnic Institute and State University survey. The questionnaire consisted of 4 parts:

The first part was to collect demographic data of the target population where race, age, marital status, educational level, employment status and monthly income of household.

The second part was the questions on knowledge about breast cancer. This will be assessed by 5 questions. The questions were corrected and mean value on knowledge of the Muar population was evaluated.

The third part was the questions on awareness of breast cancer risk and it included 7 questions.

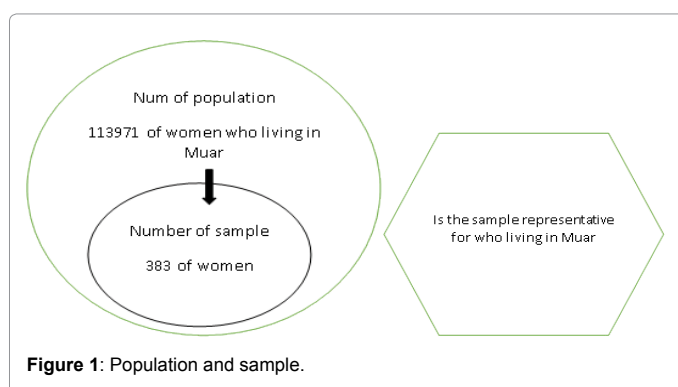


Figure 1: Population and sample.

The fourth part was to determine the practices of breast cancer screening practice which consist of 7 questions and the respondents were required to identify the correct answers. The correct answer was given 1 score and 0 score for wrong answer. The score was classified into 3 levels.

Data Cleaning

The data was analyzed in SPSS under descriptive statistics. There were few outliers detected and were removed as the data cleaning process (Table 1).

Data Analysis

Results of the study

This chapter presents the results of this study. It has the findings from the analysis of data and survey instrument.

Respondents age, marital status, level of education and income regardless of site

As seen in Table 1, in the income and education categories, most of the respondents reported having an annual income between 100 to 1999 (n=121), and had completed university or college (n=165). After the respondents' profile was determined, comparisons were made between their age, income and education. The respondents who were married (n=182) and unmarried (n=182) were equal and most respondents were 18 years of old (n=274) (Table 2).

Breast cancer knowledge pass/fail percentage breakdown among women regardless of site

Around two third of the respondents (72%) passed question one in the knowledge section. For question two, sixty percent passed this question. However, only thirty-six percent of the respondents answered correctly for question three. This shows that many respondents are not aware of the risk factor of for breast cancer. For question four, majority of the respondents that is about eighty percent failed. Many respondents are not aware of the age that a woman should begin having mammogram. Question five has the highest percentage of respondents who passed the question in knowledge section that is seventy-four percent. This indicates that the respondents are aware that heredity is a cause of breast cancer.

Any score below 70 overall section was considered failing. Seventy was chosen as the passing cut-off point based on research regarding this matter. In overall, fifty-three percent which is half of the respondents passed the entire breast cancer knowledge section (Table 3, Figure 2).

Relationship between sociodemographic factors and breast cancer screening practice

Tables 4 to 9 are chi-Square analysis which show association between practice score and income range, age group, race, marital status of respondents, level of education of respondent and employment status.

Table 4, chi-square test of independence between income and breast cancer screening practice produced a p-value of 0.001. Thereby, income and breast cancer screening practice are dependent.

Table 5, chi-square test of independence between age group and breast cancer screening practice produced a p-value of 0.830. Thereby, age group and breast cancer screening practice are independent.

Table 6, chi-square test of independence between race and breast

cancer screening practice produced a p-value of 0.211. Thereby, race and breast cancer screening practice are independent.

Table 7, chi-square test of independence between marital status of responder and breast cancer screening practice produced a p-value of 0.216. Thereby, marital status of responder and breast cancer screening practice are independent.

Excellent (80-100%)	7-8
Moderate (60-79%)	5-8
Poor (less than 59%)	0-4

Table 1: Descriptive statistics.

Characteristic	N	%=100
Number of respondents	383	
Age:		
Group 1(18-25)	145	37.9
Group 2(26-31)	85	22.2
Group 3(32-37)	53	13.8
Group 4(38-43)	47	12.3
Group 5(44-49)	20	5.2
Group 6(over 50)	33	8.6
Marital Status:		
Never Married	182	47.5
Married	182	47.5
Divorced, Separated, Widowed	14	3.7
Others	5	1.3
Education:		
Primary school	19	5
High school	126	32.9
University/college	165	43.1
Bachelor degree	58	15.1
Master degree	11	2.9
Doctorate	1	0.3
Others	3	0.8
Income:		
100-1999	121	31.6
2000-3999	79	20.6
> 4000	23	6.0
Not reporting	160	41.8

Table 2: Sociodemographic characteristics of participants.

Question	Percentage
K1	71.8%
K2	60.1%
K3	36.3%
K4	19.8%
K5	73.9%
TOTAL	261.9% (52.38%)

Table 3: Level of knowledge regarding breast cancer.

Table 8, chi-square test of independence between education level of responder and breast cancer screening practice produced a p-value of 0.008. Thereby, education level of responder and breast cancer screening practice are dependent.

Table 9, chi-square test of independence between employment status and breast cancer screening practice produced a p-value of 0.924. Thereby, employment status and breast cancer screening practice are independent.

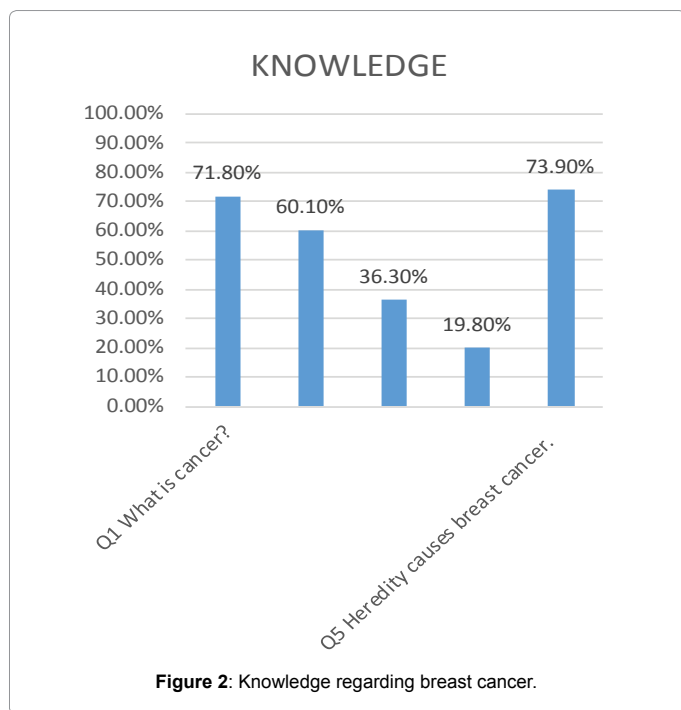


Figure 2: Knowledge regarding breast cancer.

Crosstab				Pearson Chi-Square			
Count				Value	df	Sig	
PRACTICE	INCOME RANGE						
Score	Poor	100-1999	2000-3999	over 4000	18.547 ^a	4	0.001
	Moderate	93	51	8			
	Excellent	23	23	14			
	Excellent	5	5	1			

Table 4: Association between practice and income range.

Crosstab							Pearson Chi-Square			
Count							Value	df	Sig	
PRACTICE	AGE GROUP									
Score	Poor	18-25	26-31	32-37	38-43	44-49	over 50	5.827 ^a	10	.830
	Moderate	94	56	39	32	16	24			
	Excellent	44	23	11	11	4	8			
	Excellent	7	6	3	4	0	1			

Table 5: Association between practice and age group.

Crosstab					Pearson Chi-Square			
Count					Value	Df	Sig	
PRACTICE	RACE							
Score	Poor	malay	indian	chinese	others	8.384 ^a	6	0.211
	Moderate	96	69	82	14			
	Excellent	44	34	20	3			
	Excellent	7	6	8	0			

Table 6: Association between practice and race.

Crosstab					Pearson Chi-Square			
Count					Value	df	Sig	
PRACTICE	MARITAL STATUS OF RESPONDER							
Score	Poor	never married	married	divorced,seperated,widowed	other	8.307 ^a	6	0.216
	Moderate	121	125	13	2			
	Excellent	51	47	0	3			
	Excellent	10	10	1	0			

Table 7: Association between practice and marital status.

Determination of compliance according to age group

After the profile was determined, the second step of the analysis process was to determine which respondents were compliers and which were non-compliers. Each respondent's compliance was determined by her reported practice of the recommended breast cancer screening for her age group. There were six age groups: (Group 1) 18-25; (Group 2) 26-31; (Group 3) 32-37; (Group 4) 38-43; (Group 5) 44-49; and (Group 6) over 50.

Respondents in Groups 1 and 2 were considered compliant if they practiced breast self-examination (BSE) monthly. Respondents in Group 3 were considered compliant if they practiced BSE monthly, and had a clinical breast examination (CBE) every two years. Respondents in Group 4 were considered compliant if they practiced BSE monthly and had an annual CBE. Respondents in Groups 5 and 6 were considered compliant if they practiced BSE monthly, had an annual CBE, and a received mammogram annually.

Respondents were considered non-compliant if they did not report doing all of the recommended breast cancer screening methods for their age group. Table 2 shows how compliance was determined according to groups. A tick is placed in each box that corresponds to the breast cancer screening that should be practiced for each age group.

Group 5 performed the least percentage breast self-examination (BSE) monthly while Group 1 appears to be having the highest percentage of breast self-examination (BSE).Group 5 performed the least clinical breast examination (CBE) and mammogram annually (Table 10).

Table 4 shows the compliance of the respondents in this study. The age group was divided Virginia Polytechnic Institute and State University. In age group 1, 2 and 3, 50% to 60% of the respondents do breast self-examination (BSE) monthly. However, only 40% to 50% respondents do monthly breast self-examination. clinical breast examination (CBE) is annually done by respondents in age group 4, 5 and 6 are only 30% to 50%. Annual mammogram screening is only 20% to 30% among respondents in age group 5 and 6.

Discussion

The result of this study on level of knowledge of women in Muar was poor which is 52.38%.The women population was not aware of the correct age of a women to undergo a mammogram. This might be because of poor knowledge regarding the breast cancer screening. Meanwhile, the studies which was supporting our research stated that knowledge and practice about breast cancer screening in women referred to Qouds Maternity Hospital in Zahedan, Iran was poor which was about 67.4%. This level of knowledge will affect the population to do screening for breast cancer.Furthermore there was a was finding that was contraindicating to our result which studies was done in Senegal, revealed a high level of knowledge which is 70.8% on breast cancer risk factors and its early warning signs where it encourages people from seeking early intervention or even to admit that symptoms they may be experiencing are related to breast cancer. There was also another

Crosstab									Pearson Chi-Square		
Count									Value	df	Sig
PRACTICE		EDUCATION LEVEL OF RESPONDER									
		primary school	high school	university or college	bachelor degree	master degree	doctorate	other			
Score	Poor	13	95	117	24	8	1	3	26.764a	12	0.008
	Moderate	4	27	39	28	3	0	0			
	Excellent	2	4	9	6	0	0	0			

Table 8: Association between practice and education level.

Crosstab				Pearson Chi-Square		
Count				Value	df	Sig
PRACTICE		EMPLOYMENT STATUS				
		Unemployed	employed			
Score	Poor	122	139	.158a	2	0.924
	Moderate	45	56			
	Excellent	10	11			

Table 9: Association between practice and employment status.

Screening Practice	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Breast Self- Examination(BSE) monthly	✓ 85/145 (58.6%)	✓ 45/85 (52.9%)	✓ 27/53 (50.9%)	✓ 22/47 (46.8%)	✓ 12/27 (44.4%)	✓ 12/26 (46.2%)
Clinical Breast Examination (CBE) annually				✓ 17/47 (36.2%)	✓ 11/27 (40.7%)	✓ 12/26 (46.2%)
Mammogram annually					✓ 6/27 (22.2%)	✓ 9/26 (34.6%)

(Group 1) 18-25; (Group 2) 26-31; (Group 3) 32-37; (Group 4) 38-43; (Group 5) 44-50; (Group 6) >50

Table 10: Compliance of breast cancer screening practice.

study that supports out result which is from the research of Sadler GR that mentioned the majority of these women reported that their breast cancer knowledge is inadequate which was 70%. However, for our research stating that the level of knowledge of women in Ibadan, South West, and Nigeria was poor which is about 29.2%. Moreover, based on our result there were relationship between socio demographic factors such as level of education and income towards breast cancer screening practise, he stated that several factors such as demographical factors which includes level of education, employment status, and marital status influences the breast cancer screening rate, stated that only demographic variable which includes age, marital status and race have been found to predict breast cancer screening rate which was contradictory to our finding.

Based on our result, 50% to 60% of the aged group 1,2 and 3 respondents do breast self-examination (BSE) monthly but only 40% to 50% respondents do monthly breast self-examination in aged group 4,5and 6. Compliance of breast cancer screening which were obtained high in number based on clinical breast examination (CBE)done by the population which was categories as group 4 ranging from age group of 38 to 43 whereas the age group of more than 50 years seems to be high in number to undergo mammogram stated that almost half (44.8%) of women who never had a Clinical Breast Exam (CBE) and 44.1% of women who never had a mammography which closely related to our result which are about 40-50% women never had Clinical Breast Exam (CBE) and about 60-70% women had never had a mammography. Despite, that only 8.3% of women were aware of breast cancer screening methods which are breast self-examination about 21.6% and mammography about 3.4% are not supporting our results.

Conclusion

The survey result proved that there is very poor knowledge among the woman regarding the breast cancer screening practice. Moreover, there is association between socio-demographic between income and

education on breast screening practice. Lastly, the compliance of breast cancer screening practice among woman in the Muar district is also very low.

Recommendations

In order to increase the knowledge among the woman regarding the breast cancer, campaign and also health talk is the excellent platforms for them to get some knowledge regarding the breast cancer. Other than that, education on the effects of the breast cancer should be given to the community.

Regarding the sociodemographic factor, we should educate the students starting from childhood about the breast cancer risks and practises. Other than that, we must educate the community with low level of education to increase their knowledge about breast cancer screening. We should educate the elderly people because they have very poor knowledge about breast cancer practice. We can educate them through programmes like campaigns and also demonstrations of breast self-examination.

Moreover, we could educate them with the basic steps of the breast self-examination to increase the number of compliance of breast cancer screening practice. We should give the chance for the newly graduate medical student to organize few health intervention programmes in urban area. This effort not only will increase the number of compliance but at the same time we can give the fresh graduates a better experience. Other than that, we also can show them the proper way to perform the breastself-examination by demonstrations and provide free clinical breast examination in medical camps.

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