RESEARCH COMMUNICATION

The Usage and Knowledge of Mammogram among Women in Sub-Urban Area in Terengganu, Malaysia

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Abstract

Introduction: Breast cancer is the leading cancer in women today and the major challenge is late presentation then later contributes to poor outcome and high fatality rate. Mammography is effective in early detection of breast cancer and consequently significantly improves the breast cancer survival. **Materials and Methods:** This cross-sectional study was used to study the knowledge and awareness towards mammogram amongst women aged 15 years old and above. A systemic random sampling was applied and information gathered through guided interview by using a structured questionnaire. **Results:** Eighty-six respondents were recruited. The mean age of respondents was 40.5 years (SD: 15.51) and more than 80% had secondary and tertiary level of education. The percentage of respondents ever performed mammogram was 10.5% (95% CI: 4.0%-17.0%). The rate of correct answers was between 8.1% and 48.8%. Most of the respondents do not sure the answer (45.3%-61.6%) rather than wrongly answer (4.7%-43.0%). Only about 8% truly answer that mammogram should be done once in a life. There are 10.5% of women claimed that mammogram had no serious side effect and not a painful procedure. Nearly half of respondents (48.8%) correctly mentioned that Mammogram can detect breast cancer in early stage. **Conclusion:** Only a small percentage of women ever performed mammogram and there are seriously unaware and poor knowledge pertaining to mammography screening for breast cancer among women in sub urban area. A massive health education campaign through multiple methods and agencies are needed to enhance the knowledge and awareness on mammogram.

Keywords: Mammography - breast cancer - knowledge

Introduction

Breast cancer is the most frequently occurring cancer in women globally. The number of newly diagnosed breast cancer was estimated to be more than a million, and there were more than 400,000 deaths world-wide in the year 2002 (Coughlin and Ekwueme, 2009). A marked geographical variation was observed, with the highest incidence in northern Europe and North America, intermediate in southern Europe and South America and lowest in Africa and Asia. In more developed countries, the age-standardised incidences were 95 per 100,000 compared to 20 per 100,000 in those less developed. However in Asia, in recent years there has been a rapid increase in the breast cancer incidence and this disease tend to occur at a relatively young age (Yip et al., 2006).

Based on National Cancer Registry 2006, breast cancer is the most frequently diagnosed cancer in Malaysian women, irrespective of age groups and ethnicity, accounting for 30.4%. The crude incidence for breast cancer in Malaysia was estimated to be 34.86 per 100,000 population (Hisham and Yip, 2004) compared to 22, 17, 16, 54, 130 over 100,000 population in Indonesia, China, India, Singapore and USA respectively. The age-standardised incidence rate (ASR) in this country was 46.2 per 100,000 women. This means that approximately 1 in 20 women in the country develop breast cancer in their lifetime. However, the rate differs between the three main races, the Malays, Chinese and Indians. The age standardized incidence in Chinese is the highest, with 59.7 per 100,000, followed by the Indians at 55.8 per 100,000 (Yip et al., 2006).

Breast cancer in Malaysian women occurs more commonly in younger women, aged between 40 and 49 years. The similar high prevalent among middle age group also was noted in Nigeria in which the mean age for breast cancer in Nigeria was 48 years. The major challenge in the breast cancer management is late presentation and later contributes to poor outcome and high fatality rate. It was noted that, majority of breast cancer patient in Nigeria were presented at advanced stage (Adesunkanmi et al., 2006). This same phenomenon also occurred in Malaysia setting. It was reported by Hisham and Yip (2004) that approximately 50% to 60% of newly diagnosed breast

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cancers in Kuala Lumpur, Malaysia were Stage 3 or 4 with mean tumour size at presentation was 5.4cm (range, 1–20cm). The prevalent age group was 40 to 49 years old. They also found that tumours were larger in Malay women and this ethnic group were presented with more advanced disease compared to Chinese and Indian women (p<0.05) (Adesunkanmi et al., 2006).

There was racial discrepancy in the 5-year survival among the three major ethnic groups in Malaysia, with Malay women surviving only 46%, Chinese women, 63% and Indian women having a 57% 5-year survival rate. Beside late in seeking treatment, other reasons behind this discrepancy could be due to differing screening practices, health seeking behaviour, treatment compliance, health resources available, population structure and socioeconomic status (Yip et al., 2006; Taib et al., 2007)

In order to improve the cure rate as well as the survival rate of breast cancer patient, there is a need to emphasis on the early breast screening. The available and advisable method for breast cancer screening worldwide are breast self examination (BSE), clinical breast examination (CBE) and mammogram (Coughlin and Ekwueme, 2009). Mammographic screening has improved breast cancer survival since it can detect early breast change or abnormality compared to BSE or CBE (Collins et al., 2010). Despite evidence that breast cancer screening reduces morbidity and mortality, until recently most women have not undergone regular mammogram examinations.

In a community study conducted by the Ministry of Health Malaysia among 59,903 women in all states of Malaysia, mammography was carried out in only in 3.8% of women 50 years and older. However, higher proportion of women above 20 years of age performing BSE and CBE (34% and 31% of respectively). There were also a significant difference in screening rates between urban and rural areas (50.6% versus 42.3% respectively, P<0.05) (Parsa et al., 2008b). Therefore, generally the commonest presenting symptom was a lump in the breast in over 90% of cases that felt by the woman herself (Yip et al., 2006). A study amongst 25 breast cancer women who presented late to the health care facilities reported that most of them found the lumps themselves, and only one was detected on screening mammogram (Taib et al., 2007).

The use of mammogram as breast cancer screening in Hong Kong rather higher, 28% especially those women who were health conscious (ate a lower fat diet and performed regular exercise) (Abdullah et al., 2001). In fact in America, 52% of African American and 83% of Asian Indian Women had had mammogram within the past 2 years (Skinner et al., 1998; Somanchi et al., 2010).

The low usage of mammogram is related to lack of knowledge (Collins et al., 2010) and other factors particularly the elderly, those with a low education level, smokers, those with a negative attitude towards screening tests (Lee et al., 2010), physician ethnicity and not having a healthcare provider (Somanchi et al., 2010), high cost, availability of other methods, instrument not available and high risk of radiation (Al-Naggar et al., 2009).

Therefore it is important to determine the level of knowledge regarding the mammogram as a breast screening method among women in our community in order to recognize the magnitude of current practice. Hence, it will help healthcare professionals and planners to modify, emphasis, strengthening and select the best and more effective health education program and breast awareness campaigns pertaining to mammogram. Finally it is hope that, the problem of late presentation can be curbed and the survival of breast cancer patients would be improved.

Materials and Methods

Study design and selection of participants

A cross-sectional study was conducted in Kampung Alor Lintang, Jerteh, Terengganu, a sub-urban area. It is located about 65 km from Kota Bharu, a city in Kelantan or 150 km from Kuala Terengganu, a city in Terengganu in November 2009. The population in this area is about 1800 peoples who live in 385 houses. The area is 15km^2 and its density is about 1029 people/km^2.

This study recruited eighty-six female age above 15 year-old and excluded those with known to have psychiatric problem and already been diagnosed to have breast carcinoma. A systematic random sampling was applied in selecting the respondents. The Research Ethics Committee (Human), Universiti Sains Malaysia has approved the study protocol (USMKK/PPP/JEPeM (218.4. (1.9(12)))).

Research instruments

The collection of data was carried out by using a structured study questionnaire through guided interview process. The questionnaire consisted of socio-demography information including age, education level, occupation and monthly income. The knowledge of respondents was assessed through nine items covering on the mammogram availability, procedure, side effects, indication and function.

Categorical responses (true/false/not sure) were applied for these knowledge items. The following scoring method was used: for positive knowledge item, '2' marks for correct response, '1' mark for don't know, and no mark for incorrect response. The scoring was reversed for the negative knowledge item.

Statistics

Data gathered were input into SPSS version 12.0 and analysed using same software. Continuous variables were described by descriptive statistics such as mean, and standard deviation. Meanwhile, categorical variables were expressed by the frequencies and percentage. The mean percent of knowledge score was calculated based on the mean knowledge score over maximum knowledge score times hundred.

Results

The total numbers of female involved in this study was eight-six respondents. Most of them are Malay and all are Muslims. About 56.7% people are above 35

years old, 28.1% is below 24 years old and the rest fall in between. Only a small proportion of the respondents did not access to formal education (5.8%) and more than 80% had secondary and tertiary level of education. Half of them were housewives and only 9.3% were professional workers. Students constituted 17.4% and the remaining ware self-employed, labourers and others. Nearly one-third of them gain RM2000 and more monthly and 32.6% gain less than RM720 monthly. One-quarter (25.6%) of respondents still single and 66.3% married as shown in Table 1.

Table 1. Descriptive Profile on the Sociodemography of Respondents (n=86)

Variables	Frequency (%)
Age	40.48 (15.51)*
Ever performed mammogram	9 (10.5%) ‡
Education level	
None	5 (5.8%)
Primary	11 (12.8%)
Secondary	62 (72.1%)
Tertiary	8 (9.3%)
Occupation	
Housewife	43 (50.0%)
Students	15 (17.4%)
Self-employed	9 (10.5%)
Professionals	8 (9.3%)
Labourer	6 (7.0%)
Others	5 (5.8%)
Family income	
< RM 720	28 (32.6%)
RM 720 - 1999	31 (36.0%)
RM 2000 - 3999	15 (17.4%)
> RM 3999	12 (14.0%)
Status	
Married	57 (66.3%)
Single	22 (25.6%)
Divorce/Widows	7 (8.2%)

*Mean (standard deviation); ‡95% CI: 4.0%-17.0%

once in a life. There are 10.5% of women claimed that mammogram had no serious side effect and not a painful procedure. Nearly half of respondents (48.8%) correctly mentioned that Mammogram can detect breast cancer in early stage as illustrated in Table 2.

Discussion

Mammography has been established as the primary and standard imaging screening method for breast cancer detection since its superiority compared to CBE and BSE (Majid et al., 2003). One study claimed the sensitivity and specificity of mammography in detecting invasive breast cancer was 33.3% and 95.0% respectively. This much better compared to CBE with 17.9% sensitivity and 79.5 % specificity (Kriege et al., 2004). The contribution of mammography was impressively high in the detection of smaller cancers (59% for non-infiltrating cancers and 52.6% for infiltrating cancers with less than 1 cm size) particularly in younger women (Baker, 1982). The likelihood of having breast cancer in negative mammography patients is low, approximately 2.6%-2.7% (Moy et al., 2002; Rl and Roubidoux, 2002). Fairly recent report claimed that the use of mammography results in a 25% to 30% decreased mortality rate in screened women compared with controls after 5 to 7 years (Ng and Muttarak, 2003).

Despite of high sensitivity and specificity of the mammography in detecting early breast cancer and its benefits, the proportion of women utilized it still low. This study found only 10.5% (95% CI: 4.0%-17.0%) of respondents ever performed mammogram. The rate of mammography usage in Malaysian women almost more than 10 years ago was reported as 3.8% (Parsa et al., 2006). Their rate was more than two times lower than current finding, since their study population was women aged more than fifty years. This may indicate that, there is not much improvement in the mammography usage

Table 2. The Knowledge and Awareness Towards Mammogram among Respondents (n=86)

Knowledge and awareness	Not sure, n (%)	Wrong Answer, n (%)	Correct Answer, n (%)	Mean percent
Mammogram can be carried out at any health clinic	40 (46.5%)	11 (12.8%)	35 (40.7%)	33.0%
Mammogram should be done once in a life	50 (58.1%)	29 (33.7%)	7 (8.1%)	38.0%
Consultation or advice from doctor / health staffs prior to mammogram not needed	44 (51.2%)	31 (36.0%)	11 (12.8%)	31.0%
Mammogram have serious side effect to the patient	47 (54.7%)	30 (34.9%)	9 (10.5%)	40.0%
Mammogram is painful	53 (61.6%)	24 (27.9%)	9 (10.5%)	33.0%
Mammogram can detect breast cancer in early stage	40 (46.5%)	4 (4.7%)	42 (48.8%)	51.0%
Women above 40 years need to do mammogram once a year	47 (54.7%)	8 (9.3%)	31 (36.0%)	40.5%
Mammogram only indicated for women with breast problem	39 (45.3%)	37 (43.0%)	10 (11.6%)	49.0%
Need hospital admission to perform mammogram	43 (50.0%)	32 (37.2%)	11 (12.8%)	43.5%

The percentage of respondents ever performed mammogram was 10.5% (95% CI: 4.0%-17.0%). The rate of correct answers was between 8.1% and 48.8%. Most of the respondents do not sure the answer (45.3%-61.6%) rather than wrongly answer (4.7%-43.0%). Only about 8% truly answer that mammogram should be done

in this country through out ten years period. Comparing with more recent studies in other countries, the proportion of women who had had at least one mammogram was reported 37.5% (women over the age of forty years) in Turkey (Nur, 2010), 28 % in Hong Kong (Abdullah et al., 2001), 52 % amongst African American and 83% of Asian

Indian Women (had mammogram within the past 2 years) (Skinner et al., 1998; Somanchi et al., 2010).

The rate of utilizing mammogram as early breast cancer screening in this study found to be much lower than other recent studies since this study recruited female age above 15 year-old. Therefore, it is estimated that women aged forty and above who ever performed mammogram would be higher in this community. Those below the age of forty were categorized as low risk group and not a priority or indication for performing mammogram (unless if having other risk factors) since it is costly. Currently, there are RM 50.00 is allocated as incentive for high risk women provided by Malaysian government to pursue more women to do mammogram. However, they still need to cover the extra cost for this screening test between RM 150.00 to RM 200.00. Probably, this could be the hindering factor for poor utilizing the mammogram as reported by other study (Al-Naggar et al., 2009). Apart from the, other barriers that may limit the utilization of mammography as reported by previous studies were embarrassment, low income, lack of health insurance, lack of physician recommendation, lack of trust in hospitals and doctors, language barriers, lack of transportation (Alexandraki and Mooradian, 2010), single lady and not having breast-related complaints (Nur, 2010).

Pertaining to the knowledge of respondents towards mammogram, this study revealed that the percentage of correct answers was between 8.1% and 48.8%. Most of the respondents do not sure the answer (45.3%-61.6%) rather than wrongly answer (4.7%-43.0%). More than half of respondents even did not know correctly the availability of this test. Meaning that, the information of the mammography screening center is still not well known by the public.

This study found the majority of respondents believed that, hospital admission is required to do mammogram. People usually try by hard to avoid being admitted into hospital because of many reasons. Hence, when they believed the need of hospitalization prior to mammography, the rate of women interested to utilize it will be affected. Furthermore, only about 8% truly answered that mammogram should not be done only once throughout a life and 36% know once a year mammography screening is needed for women above 40 years. On top of that, less than half of participants (48.8%) correctly mentioned that Mammogram can detect breast cancer and nearly 90% of women do believed that mammogram had serious side effect and a painful procedure. The low level of knowledge, availability and false believe regarding the mammogram could contribute to the low rate of performing mammography in current study. A study done in Yemen showed that the availability of the mammogram and worrying of side effects were the reasons for low utilizing mammography screening (Al-Naggar et al., 2009). The risk perception regarding breast cancer and educational status also was reported associated with increased mammography rates (Yavan et al., 2010).

Comparable results were reported in Selangor, Malaysia. There were moderate to low knowledge on breast cancer and breast cancer screening among 425 female secondary school teachers. They found that those with information on breast cancer screening and had regular visit with a physician were associated with breast cancer screening behaviors (P<0.05). Their study did not show a significant association between screening behaviors and age, family history of breast cancer, marital status or having health insurance (Parsa et al., 2008a). In fact, the knowledge level on breast cancer also low among the breast cancer patient as reported in other study carried out in Malaysia (Loh et al., 2009).

The findings suggest the need to intensify the dissemination of information regarding breast cancer and available screening services among the public in order to increase the rate of performing mammogram. It has been proposed that peer education as an effective method to increase the knowledge, beliefs, and practice of women related to breast cancer, therefore it could improve early diagnosis of breast cancer and breast cancer awareness in asymptomatic women (Gozum et al., 2010) particularly high risk group. There is a need to inform the public on the indications, side effects, procedures and advantages of mammography. Pertaining to the pain as mammography side effect, Sharp et al., (2003) reported that 72% of women gave the pain score ranked 4 or less on a scale of 0 to 10 (mean±SD score, 2.95±2.09). They reported the highest level of pain was resulted from the compression of the breasts (3.25±2.43) (Sharp et al., 2003). Moreover, previous study reported that if attention is given to underrepresented groups, particularly the elderly, those with a low education level, smokers, and those with a negative attitude towards screening tests, the nationwide breast cancer screening rate including mammography would increase (Lee et al., 2010).

In conclusion, This study revealed a low percentage of women ever performed mammogram and there are seriously unaware and poor knowledge pertaining to mammography screening for breast cancer among women in sub urban area. A massive health education campaign through multiple methods and agencies are needed to enhance the knowledge and awareness on mammogram.

Acknowledgement

Conflict of Interest

The study has no conflict of interest.

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