

## RESEARCH ARTICLE

# Breast Cancer Awareness of Rural Women in Malaysia: is it the Same as in the Cities?

Abdul Aziz Norlaili\*, Mohd Amin Fatihah, Nik Farid Nik Daliana, Dahlui Maznah

### Abstract

Breast cancer is the most common cancer among women globally. This study was conducted to compare the awareness of breast cancer and the practice of breast self-examination (BSE), clinical breast examination (CBE) and mammography screening among rural females in Pahang and Perak. A cross-sectional study was carried out in five selected rural districts of Pahang and Perak. Two hundred and fifty households were randomly selected and interviewed face to face using a semi-structured questionnaire. The majority of residents from both states were Malay, aged between 50 and 60 years and had a secondary level of education. Malay women aged 40–49 years and women with a higher level of education were significantly more aware of breast cancer ( $p < 0.05$ ). About half of these women practiced BSE (60.7%) and CBE (56.1%), and 7% had underwent mammography screening. The results of this study suggest that women in Pahang and Perak have good awareness of breast cancer and that more than half practice BSE and CBE. The women's level of education appears to contribute to their level of knowledge and health behaviour. However, more effort is needed to encourage all women in rural areas to acquire further knowledge on breast cancer.

**Keywords:** Breast cancer - awareness - breast self-examination - clinical breast examination - rural Malaysia

*Asian Pacific J Cancer Prev*, 14 (12), 7161-7164

### Introduction

Breast cancer is the leading form of cancer among women both in the developed and the developing world (WHO, n.d; Ali et al., 2011) and causes the most cancer deaths each year (WHO, 2013). Western Europe, North America, Australia and New Zealand have the highest incidence, and Asia, Africa and South America have the lowest (Bray et al., 2012). It was estimated that 1.38 million new breast cancer cases were diagnosed in 2008, with 458,000 deaths from breast cancer worldwide (GLOBOCAN, 2008). In the U.S. in 2013, more than 200,000 new cases of invasive breast cancer, along with 64,640 new cases of in-situ breast cancer, were expected to be diagnosed in women (American Cancer Society, 2013). Breast cancer is increasingly common in Malaysia (Yip et al., 2012). According to Omar et al., 2011, a total of 3,242 new cases of breast cancer were reported in Malaysia in 2007, giving an age-standardized incidence rate of 29.1 per 100,000 women (Omar et al., 2011).

Most cancer cases and deaths are potentially preventable, including breast cancer (Stein and Colditz, 2004). Having adequate knowledge of breast cancer empowers women and encourages them to participate in prevention and screening programs related to the disease.

However, in certain rural areas, mammography and regular examinations by physicians are not feasible due to logistical problems, such as poor access roads (Noor Ghani and Yadav, 2008). Breast cancer awareness interventions targeting women living in rural areas of Malaysia are essential because Malaysian women present with later stages of breast cancer compared to their counterparts in developing countries (Yip et al., 2006).

In a University Malaya Medical Centre study, they reported that about 30-40% presented with late-stage breast cancer. Patients who presented with advanced disease were also found to be from rural areas (Leong et al., 2007) and to have deficits in knowledge of symptoms and risk factors of breast cancer (Abdul Hadi et al., 2010; Nik Rosmawati, 2010). These findings are further supported by other studies, with two qualitative studies that explored Malaysian cancer patients' perceptions of cancer screening noting inadequate knowledge as a barrier to breast cancer screening (Farooqui, 2013, Bachok et al., 2012). In addition, an international study carried out among Kenyan women revealed a huge gap between urban and rural women with respect to knowledge of breast cancer and early detection measures (Muthoni et al., 2010).

It is commonly accepted that to appreciate the

Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia \*For correspondence: drnorlaili@gmail.com

importance of breast screening, one must know about breast cancer. Several studies have been conducted in Malaysia to assess the awareness of breast cancer and screening practices, but most of these have been carried out in urban areas (Parsa et al., 2008; Abdul Hadi et al., 2010; Al-Dubai et al., 2012; Dahlui et al., 2012). Little is known about knowledge of breast cancer and screening uptake among rural women of Malaysia. Hence, the aim of this study was to determine the level of awareness and breast cancer screening practices among females living in rural areas of Peninsular Malaysia.

## Materials and Methods

A cross-sectional study was conducted in 20 villages from five rural districts of Pahang and Perak in 2009 and 2010. Pahang is located in the east coastal region whilst Perak is in the northern region. Pahang is the largest state in Peninsular Malaysia, and Perak is the second largest. The land area of Pahang and Perak is 36,137 km<sup>2</sup> and 21,035 km<sup>2</sup>, respectively, with a population density of 42 and 112 persons per km<sup>2</sup> in Pahang and Perak, respectively. In terms of urbanisation status, 50.5% Pahang is urbanised, and 69.7% of Perak is urbanised (Department of Statistics Malaysia, 2010).

Two hundred and fifty households were surveyed. Women aged 20 to 60 years old who had resided in the village for at least six months were recruited in this study. Women with psychiatric problems and who did not give consent were excluded. Face-to-face interviews were conducted by medical students who had been trained, and the interviews were guided by structured questionnaires. The questionnaires consisted of questions on socio-demographics, knowledge of breast cancer and screening methods, screening practices and availability of social support for screening practices. Ethics approval was obtained from the Ethical Committee of the University Malaya Medical Centre. Data gathered were input into SPSS version 16.0. The data from each state were analysed separately and merged for comparison of particular variables. Chi square tests were applied to compare the categorical variables between the groups and to show associations between categorical variables. The level of significance was set at  $p < 0.05$ .

## Results

In total, 1,960 women from the selected districts of Pahang and Perak responded to the survey. The majority was aged between 40 and 60 years old, of Malay ethnicity and had a secondary school education. Table 1 shows the characteristics of the respondents from both states.

Table 2 compares the percentage of awareness of breast cancer among the women from Pahang and Perak according to ethnic group, age group and level of education. In general, the percentage of respondents with awareness of breast cancer was higher among the women in Pahang compared to those in Perak ( $p < 0.05$ ).

In each state, Malay women had the highest percentage of awareness of breast cancer ( $p < 0.005$  and  $p < 0.05$ , respectively), followed by Chinese and Indian women

**Table 1. Socio-demographic Characteristics of Respondents**

Characteristics	Pahang (%)	Perak (%)	Total (%)
Ethnicity			
Malay	761 (76)	775 (81)	1536 (78)
Chinese	86 (9)	106 (11)	192 (10)
Indian	61 (6)	48 (5)	109 (6)
Others	93 (9)	30 (3)	123 (6)
Age groups			
20–29	176 (18)	145 (15)	321 (16)
30–39	233 (23)	165 (17)	398 (20)
40–49	259 (26)	231 (24)	490 (25)
*50–60	333 (33)	418 (47)	751 (38)
Level of education			
≤Primary	464 (46)	466 (49)	930 (47)
≥Secondary	537 (54)	493 (51)	1030 (53)

\*The p value for the comparison between the states was  $< 0.05$ ; Total numbers were 1001 in Pahang and 959 in Perak

**Table 2. Proportions of Respondents with Awareness of Breast Cancer According to Ethnicity, Age Group and Level of Education**

Characteristics	Pahang	Perak	*P value
Ethnicity			
Malay	98	80	$< 0.05$
Chinese	94	69	
Indian	87	77	
Others	62	57	
Age groups			
20–29	92	85	$< 0.05$
30–39	91	85	
40–49	96	86	
50–60	92	67	
Level of education			
Primary	93	69	$< 0.05$
Secondary	97	88	

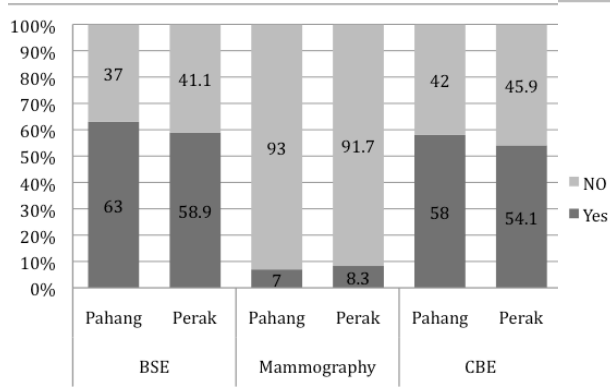
\*The p value for the comparison between the states was  $< 0.05$

in Pahang ( $p < 0.05$ ) and Indian and Chinese in Perak ( $p < 0.05$ ).

In terms of age, the percentage of women observed to have awareness of breast cancer was highest among those in the 40 to 49 years' age group from both Pahang ( $p < 0.05$ ) and Perak ( $p < 0.001$ ). Other age groups had no significant association with awareness of breast cancer.

In general, the awareness of breast cancer was associated with education. More women who attended secondary education and above were aware of breast cancer compared to women with primary schooling and below. However, the association between awareness of breast cancer and level of education was only significant for women in Perak ( $p < 0.001$ ).

Figure 1 shows the practice of breast cancer screening. More than half of the respondents from both states practiced BSE and CBE, and the majority had not undergone mammography. Of the 1,193 respondents who were aware of BSE, 61.3% and 9.1% performed it once a month. Most of those who conducted BSE did so mainly due to self-awareness (74.8%), and only 16.6% respondents did so because of recommendations from medical personnel. In Perak, a higher percentage of women (73.8%) who had a secondary level of education



**Figure 1. Percentage of Respondents who Practiced Breast Cancer Screening**

and above performed BSE compared to those with primary education and below ( $p < 0.001$ ). In contrast, in Pahang, a higher percentage (62%) of women with primary education and below performed BSE compared to those with secondary education and above ( $p < 0.05$ ).

The uptake of BSE increased with advancing age, but the increase was only significant for women in Perak. In both Pahang and Perak, an increasing number of older women had a mammogram, but this finding was only significant among the women in Perak and not in Pahang. There was an inverse relationship between mammogram screening and education level, whereby in both states, a higher percentage of mammogram screening was reported by women with primary education and below compared to those with secondary education and above ( $p < 0.05$ ). The uptake of mammogram screening was highest among Chinese, followed by Indian and Malay women (15%, 10% and 7%, respectively;  $p < 0.005$ ).

## Discussion

The purpose of this study was to examine the level of awareness and breast cancer screening uptake among females living in rural areas of Peninsular Malaysia. The analysis showed that the majority of the respondents were Malays (78.4%), followed by Chinese (9.8%) and Indian (5.7%). The ethnic distribution is similar to those living in rural residential areas of Malaysia (Department of Statistics Malaysia, 2010). The selection of the districts from the FELDA scheme in which the majority of the population is Malay may explain the higher number of Malays compared to other ethnic groups.

In this study, more than half the women (63%) were older than 40 years, giving a good representation of women with a high risk for breast cancer. Their level of awareness of breast cancer and breast cancer screening practices was good considering these women were from rural areas with limited access to health education and that most had a low level of education. However, one comparative study identified extensive differences in the prevalence of breast cancer awareness among urban and rural Malaysian women (Kanaga et al., 2011). That study reported that women from rural areas had significantly lower breast cancer awareness compared to urban women ( $p < 0.05$ ).

In terms of ethnicity, the awareness of breast cancer

and breast cancer screening practices were poorer among Chinese and Indian women compared to Malay women. This could be due to language barriers because most health promotion materials and methods are conducted in the Malay language. As expected, the awareness of breast cancer and breast cancer screening practices was higher in women with a higher level of education, a finding similar to other local studies (Abdul Hadi et al., 2010; Al-Dubai et al., 2012). One qualitative study that explored Malaysian cancer patients' perceptions of cancer screening noted a lack of belief in personal susceptibility, inadequate knowledge and financial constraints as barriers to cancer screening (Farooqui et al., 2013).

In comparing the uptake of breast cancer screening, there were slight differences observed between findings from the current study and national studies. As shown in the results, breast cancer screening by BSE, CBE and mammograms among the rural women in the current study was 41.55%, which is lower than the prevalence of breast screening by these three modalities (BSE, CBE and mammogram) for Malaysian women (46.8%) reported nationally (Malaysian Cancer Statistics, 2006). This difference may be due to factors such as the small sample size and the inclusion of only two Malaysian states. However, the percentage of breast screening via BSE (60.7%), CBE (56.1%) and mammograms (7.7%) was similar to a recent national study (NHMS III, 2006).

The uptake of mammography was very low, and most of the women who had a mammogram were aged 40 years and older. In this study, the low uptake of mammograms was expected because only women with a greater risk of breast cancer, such as those older than 40 years or with a family history of breast cancer, are advised to undergo mammography (Ministry of Health Malaysia, 2010). Nevertheless, the uptake of breast cancer screening was better among those in rural areas compared to women in urban areas, as reported by another local study (Abdul Hadi et al., 2010).

The following limitations should be noted when interpreting the findings. The study was restricted to two Malaysian states. Therefore, the results of the study are not representative of the entire population. In addition, most of the respondents were selected from FELDA land schemes where the majority of the residents are Malays. Nevertheless, the results provide a brief description of breast cancer awareness and screening among a population living in areas with limited health facilities.

In conclusion, women residing in rural areas, especially Malays, demonstrated a good level of breast cancer awareness. However, the uptake of breast cancer screening is still low. Although BSE is no longer recommended as a screening tool for breast cancer, it is an important viable option in rural areas where access to CBE and mammograms is difficult (American Cancer Society, 2003). In addition, BSE might detect breast cancer early enough for treatment (American Cancer Society, 2003). Thus, we recommend that healthcare professionals increase the awareness of BSE among women living in rural communities. This can be achieved through the use of the Internet because most villages in Malaysia have an Internet centre. Further intervention study aimed at

spreading awareness and knowledge of breast cancer prevention is required. Efforts to disseminate health education and promote women's health should be doubled in order to increase their awareness, and the role of health personnel in active screening by CBE should be expanded. Health education efforts should be customised to suit the local population, for example, catering to differences in language and making use of available resources, such as engaging educated local women to promote breast cancer screening

## Acknowledgements

We would like to acknowledge the Phase 3A medical students participating in the Community Residency Program at Pahang and Perak and the Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya. The above research was supported by UM research grant RG 410/12 HTM.

The above research is supported by UM research grant RG 410/12 HTM.

## References

- Abdul Hadi M, Hassali MA, Awaisu A (2010). Knowledge and perception of breast cancer among women of various ethnic groups in the state of Penang: a cross-sectional study. *Med Princ Pract*, **19**, 16-7.
- Al-Dubai SAR, Ganasegeran K, Alabsi AM, et al (2012). Exploration of barriers to breast self-examination among urban women in Shah Alam, Malaysia: A cross sectional study. *Asian Pac J Cancer Prev*, **13**, 1627-32.
- Ali I, Waseem A, Saleem K (2011). Cancer scenario in India with future perspectives. *Cancer Therapy*, **8**, 56-70.
- American Cancer Society (2013). Breast Cancer. Retrieved December 7, 2013.
- Bachok N, Mohd Amin R, Rampal KG, et al (2012). Understanding barriers to Malaysian women with breast cancer seeking help. *Asian Pac J Cancer Prev*, **13**, 3723-30.
- Bray F, Ren JS, Masuyer E, et al (2012). Global estimates of cancer prevalence for 27 sites in the adult population in 2008. *Int J Cancer*, **132**, 1133-45.
- Dahlui M, Ng C, Al-Sadat N, et al (2011). Is breast self-examination (BSE) still relevant? A study on BSE performance among female staff of University of Malaya. *Asian Pac J Cancer Prev*, **12**, 369-72.
- Department of Statistics Malaysia (2010). Population distribution and basic demographic characteristic report 2010. Retrieved October 7, 2013.
- Farooqui M, Hassali MA, Knight A, et al (2013). A qualitative exploration of Malaysian cancer patients' perceptions of cancer screening. *BMC Public Health*, **13**, 1-7.
- GLOBOCAN (2008). Breast Cancer Incidence and Mortality Worldwide. Retrieved December 7, 2013.
- Kanaga KC, Nithiya J, Shatirah MF (2011). Awareness of breast cancer and screening procedures among Malaysian women. *Asian Pac J Cancer Prev*, **12**, 1965-7.
- Leong BDK, Yip CH, Chuah JA, et al (2007). Breast cancer in Sabah, Malaysia: A two year prospective study. *Asian Pac J Cancer Prev*, **8**, 525-9.
- Ministry of Health Malaysia, Academy of Medicine Malaysia (2010). Clinical Practice Guideline: Management of breast cancer (2nd edition). Health Technology Assessment Section, Medical Development Division, Ministry of Health Malaysia, Putrajaya.
- Muthoni A, Miller AN (2010). An exploration of rural and urban Kenyan women's knowledge and attitudes regarding breast cancer early detection measures. *Health Care for Women Int*, **31**, 801-16.
- National Health and Morbidity Survey (NHMS III) (2006). Women's health: breast health awareness. Retrieved October 7, 2013.
- Nik Rosmawati NH (2010). Knowledge, attitude and practice of breast self-examination among women in suburban area in Terengganu, Malaysia. *Asian Pac J Cancer Prev*, **11**, 1503-8.
- Noor Ghani S, Yadav H (2008). Health Care in Malaysia. University Malaya Kuala Lumpur Press.
- Omar ZA, Ibrahim Tamin NS (2011) National Cancer Registry Report: Malaysia Cancer Statistics – Data and Figure 2007, Ministry of Health Malaysia.
- Parsa P, Kandiah M, Mohd Zulkefli NA, et al (2008). Knowledge and behavior regarding breast cancer screening among female teachers in Selangor, Malaysia. *Asian Pac J Cancer Prev*, **9**, 221-7
- Stein, CJ, Colditz, GA (2004). Modifiable risk factors for cancer. *Br J Cancer*, **90**, 299-303.
- WHO (n.d.). Breast cancer prevention and control. Retrieved December 10, 2013.
- WHO (2013). Cancer. Retrieved December 7, 2013.
- Yip CH, Ibrahim M, Mohamed I (2006). Epidemiology of breast cancer in Malaysia. *Asian Pac J Cancer Prev*, **7**, 369-74.
- Yip CH, Emran NA, Ibrahim AW, et al (2012). Breast cancer services in Malaysia [Power Point Slides]. Retrieved from Healthcare Performance Measurement & Reporting System (HPMRS).