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Review Article

Common Issues and Challenges of Breast Cancer Awareness in Malaysia: A Contemporary Scenario

Mohamed Samsudeen Sajahan[1,2]* and Azizah Omar[2]

[1]*Faculty of Administrative Science and Policy Studies, University Teknologi MARA, 08400 UiTM, Merbok, Sungai Petani, Kedah, Malaysia*
[2]*School of Management, University Sains Malaysia, 11800 USM, Penang, Malaysia*

ABSTRACT

The main purpose of the paper is to systematically review the common issues and challenges inhibiting breast cancer awareness in Malaysia. Drawing upon journals and database search dealing with breast cancer awareness in Malaysia, 38 articles were retrieved and then analysed using the content analysis method. Issues related to public health management of breast cancer pandemic in Malaysia, its effects and the fundamental principles used in developing and designing cancer control programmes, screening management as well as challenges faced by authorised agencies in promoting breast cancer awareness were studied. Methodology included identification of research streams, and the categorisation of reviewed articles into five main pillars, namely (a) thematic issue/problem statement in the articles; (b) target population; (c) applied methodologies; (d) measurement of dependent variables, and (e) findings that discuss the emerging issue and challenges in promoting breast cancer awareness in Malaysia. It is hoped that the knowledge gained will serve as a significant foundation in designing public health awareness campaigns to cultivate, instil early detection behaviour and ameliorate promotion efforts among public health authorities in Malaysia.

INTRODUCTION

Over the years, the pandemic of cancer cases around the world has become a thought-provoking issue in public health management (Youlden, Cramb, Yip, & Baade, 2014; Zelle & Baltussen, 2013; American Cancer Society, 2010). The burden of health expenditure on individual as well as public healthcare agencies due to cancer-related diseases is forecast to grow at an alarming rate worldwide in the future (World Cancer Report, 2008), especially among lower- and middle-income countries (Boyle & Levin, 2008; Sloan & Gelband, 2007). The number of new cancer cases is expected to rise to 16.8 million worldwide by 2020 and subsequently to 27 million by the year 2030 (Beaulieu, Bloom, Bloom, & Stein, 2009). Findings from the American Cancer Society (ACS) reported that the total economic impact of premature death and disability due to cancer worldwide in 2008 was USD895 billion. The top three types of cancer contributing towards the global impact are lung cancer (i.e.USD188 billion), colon/rectum cancer (i.e.USD99 billion) and breast cancer (i.e.USD88 billion) (American Cancer Society, 2010). The latest report issued by GLOBOCAN (2012) on cancer variation between the genders globally indicates that lung cancer, prostate cancer, colorectal cancer and stomach cancer are the most common types of cancer among males, while breast cancer, colorectal cancer, lung cancer and cervical cancer were identified as the common cases of cancer associated with women (GLOBOCAN 2012).

Breast cancer is identified as the most common cancer associated to a high incidence rate of mortality among women globally (Maznah, Sofea, & Awang, 2011; Jemal et al., 2011; Freedman & Partridge, 2013). Various existing studies in the literature have recognised breast cancer as the most prevalent, frequently diagnosed cancer and common cause of mortality among women worldwide (Pisani et al., 2002; Zeeb et al., 2002; Parkin et al., 2005; Eidson et al., 1994; Jemal et al., 2005; Anderson et al., 2006; Groot et al., 2006). This has been confirmed by the International Agency for Research on Cancer (IARC) in their latest press release statement (December 12, 2013) that breast cancer has caused 522,000 deaths worldwide and 1.7 million women were diagnosed with breast cancer in 2012 (WHO, 2013).

The initiative to combat the global breast cancer pandemic worldwide encapsulates comprehensive control programmes that involve prevention, early detection, diagnosis and treatment and rehabilitation and palliative care (WHO, 2015). Concisely, the fundamental principle in prevention and early detection lies in the effort of promoting breast cancer awareness that includes preventing cancers (eliminating; minimising exposure to the risk factor associated to cancer) and detecting cases (early detection control strategies) to reduce mortality. Apart from prevention, the detection control strategy comprises mammography, clinical breast examination (CBE) and breast self-examination (BSE). An annual mammogram

screening is recommended for woman aged 40 and above. CBE practice needs to be performed once every three years among women in their 20s up to age 39 and every year for women 40 years old and above. On the other hand, the BSE is promoted as a crucial and important method in improving the breast cancer outcome and in fact remains as fundamental breast cancer control strategy among nations with limited resources such as low- and middle-income countries (WHO, 2015; Ginsburg, 2013). Early detection via the BSE aided by screening can contribute towards reducing mortality by providing more opportunities for treatment choices if breast cancer is found at the early stage (Allen, Van Groningen, Barksdale, & McCarthy, 2010). Despite the lack of mutual consensus on the recommendation for BSE, numerous societies and associations such as the American Cancer Society, American College of Obstetrics and Gynaecology, American Medical Association, Susan G. Komen Foundation and the National Comprehensive Cancer Network still recommend the BSE as a tool for detecting breast cancer (Allen et al., 2010). It is postulated that early diagnosis and success of the screening initiative will result in substantial improvement in health (Loh & Chew, 2011).

In Malaysia, the incidence of breast cancer records a steady increment among all races starting from age 30 to the peak age of 50 to 59, with the majority of women diagnosed with breast cancer at the critical level aged between 40 and 60 (Hamudin, 2014). It is proposed that 50% (1,299) of

deaths due to breast cancer are avoidable with early detection and optimal access to treatment (Hamudin, 2014). From the overall total number of mortality, 647 cases of mortality could be prevented if detected at the early stage due to advancement of breast cancer treatment and cures. However, it was reported that the initiative by the National Population and Family Development Board (LPPKN) to promote early detection of breast cancer screening via introduction of a free mammogram subsidy programme received poor response from Malaysian women. Statistical evidence from the Women, Family and Community Development Ministry depicts that despite huge funding from the government to educate the public, in particular, women, on breast cancer awareness, the engagement from the target population is still relatively low. For instance, the free mammogram programme, which has been offered since 2007, received a total of RM54.2 million in allocation under the 2013 budget but only 1.5% out of 14.8 million women in the country have participated in the programme (Hamudin, 2014). This clearly indicates that while the Malaysian government has invested a vast amount of money, women have been slow to respond. This situation should not be neglected as it involves public funding, the time and expertise of healthcare policy-makers and expenditure, all of which are an economic burden to the country.

Motivated by this development, this paper aimed to conduct a systematic analysis on past journal articles to categorise and position the academic scenario, review the common issues, challenges and

methodological pitfalls as well to identify the gaps and provide direction for future research into breast cancer awareness management in Malaysia. We conducted content analysis of 38 articles related to breast cancer in Malaysia retrieved from EBSCO, Emerald, ProQuest, SAGE, Science Direct, Springer and the Taylor & Francis database. This paper begins with a brief overview of breast cancer incidence and screening management in Malaysia before providing details on the methodology applied and a descriptive discussion on the articles. The paper concludes with an agendum for future research related to the identified issues and challenges facing breast cancer awareness in Malaysia.

BREAST CANCER INCIDENCE AND SCREENING MANAGEMENT IN MALAYSIA

Breast cancer is the most common cancer among Malaysian women from all ethnic groups (Lim & Halimah, 2008). Data retrieved from the International Agency for Research on Cancer (IARC) database (GLOBOCAN) indicate that Malaysia is estimated to have 5400 new cases of breast cancer and 2500 cases of mortality in 2012. The most common cases of cancer among females are breast, cervix uteri and colorectum cancer. The highest number of deaths among women in Malaysia is caused by breast cancer (2500 deaths), lung cancer (1300 deaths) and colorectum cancer (1000 deaths). Comparison of breast cancer incidence and mortality among women in Southeast Asia indicated that Malaysia is among the top 10 countries listed, with high incidence and mortality rates. The Age Standardised Ratio (ASR) of breast cancer mortality in Malaysia is the highest at 38.7 per 100,000 population, while the ASR of breast cancer incidence is higher than for countries such as Thailand (29.3), Myanmar (22.1), Cambodia (19.3) and Laos (19) (GLOBOCAN, 2012). It is estimated that by 2030 the new cases of breast cancer in Malaysia could be as high as 9248 cases with 4546 deaths due to breast cancer (GLOBOCAN, 2012). Comparatively, the number of new breast cancer cases is expected to increase to 28% by the year 2020 and further increase to 76% by the year 2030 (Table 1).

Table 1

Prediction of number of new cases and breast cancer deaths in the years 2012, 2020 and 2030 in Malaysia

Year	Incidence (Number)	Increase (%)	Mortality (Number)	Increase (%)
2012	5410	-	2572	-
2020	6977	28	3386	31
2030	9248	70	4546	76

Source: Adopted from GLOBOCAN, 2012

The establishment of breast cancer prevention management in Malaysia is mainly anchored towards promoting early detection of breast cancer and screening practice with the aim of reducing the number of incidence and deaths (Ministry of Health Malaysia, 1995). The rationale of substantial nationwide efforts that emphasise on early detection of breast cancer and screening practice is in line with the mission of the Malaysian National Cancer Institute to promote breast cancer awareness to help the government to curb further escalation of breast cancer mortality, which in turn would enhance the cost effective management of breast cancer. In Malaysia, the implementation of screening and management of breast cancer through BSE, CBE and mammogram screening is guided by the Malaysian Health Ministry's "Clinical Practice Guidelines" (CPG: Management of Breast Cancer [2nd ed.], November 2010). Mammogram screening is recommended for women aged 50 years old and above, while women aged 40 and above are encouraged to pursue CBE annually and women aged 20 to 39 are encouraged to perform CBE once every three years. Women are encouraged BSE on a monthly basis regardless of their age.

Maznah, Sofea and Awang (2011) indicated that screening practice in Malaysia provide an opportunity for tests and examination to detect disease not only in people who have cancer indications but also in those who do not have any symptoms. Mammogram screening services are offered on a voluntary basis at no cost (free of charge) at all public hospitals in Malaysia (Maznah et al., 2011b) and on a subsidised rate (initiated by the Ministry of Women, Family and Development in 2007) at private clinics and hospitals. Until the year 2013, the Malaysian government through the Ministry of Women, Family and Development allocated a total of RM54.2 billion for a mammogram subsidy programme particularly among citizens with a monthly income of below RM5000 (Hamidun, 2014). Meanwhile, with regards to BSE, as stipulated in the Ministry of Health's "Clinical Practice Guidelines on Management of Breast Cancer", the practice of BSE is recommended to educate and promote self-health responsibility (Ministry of Health Malaysia, 2010). In Malaysia, breast cancer prevention management is anchored by the Ministry of Health, non-profit organisations and private companies (as a part of their corporate social responsibility).

METHODOLOGY

This section describes the method applied in the paper. As the first step, a structured review of articles dealing with common issues and challenges facing breast cancer awareness in Malaysia was completed. The search and identification of articles related to breast cancer awareness were conducted through a keyword search that included but was not limited to these words and phrases: breast cancer campaign, awareness, BSE, mammogram, CBE, early detection, breast cancer, breast screening, practice and barriers in breast cancer screening.

A total of 38 articles related to breast cancer in Malaysia published in EBSCO, Emerald, ProQuest, SAGE, Science Direct, Springer and the Taylor & Francis database search engines fit the review goal of this paper and were selected and analysed. In particular, latent content analysis (i.e. process of interpretation of content) within the qualitative summative content analysis approach was utilised in this study to describe the findings. The review goal of this paper was to synthesise the content of journal articles mainly to provide in-depth discussion on thematic issues underlying the problem statement, sample of respondents, applied methodologies, outcome and dependent variable measurement and determinant of Breast Cancer Awareness in Malaysia. Lastly, the findings were used to address the gaps in the review, generate a research agendum and present avenues for further research in addressing issues and challenges facing breast cancer awareness in Malaysia.

Prior to conducting the content analysis, the articles were categorized into four different streams of research in order to systemise the identified articles that were relevant to breast cancer awareness as illustrated in Figure 1.
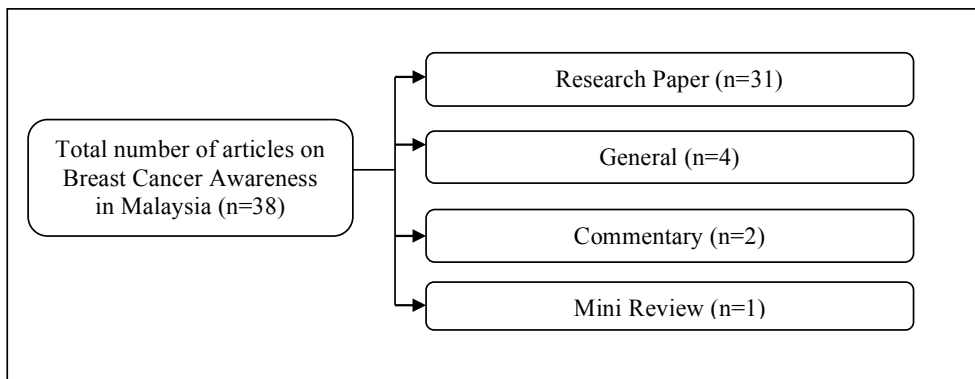

Figure 1. Research streams on breast cancer awareness campaign in Malaysia

The research papers on breast cancer awareness consisted of articles related to evaluation of breast cancer awareness (Hadi, Hassali, Shafie, & Awaisu, 2010); awareness and practise of screening procedure (including BSE and mammography) (Kanaga, Nithiya, & Noor Shatirah, 2011; Loh & Chew, 2011; Sami Abdo et al., 2011; Abdullah, Abd, Rampal, & Al-Sadat, 2011; Rosmawati, 2010); perception of breast cancer (Hadi, Hassali, Shafie, & Awaisu, 2010); knowledge related to risk factors, symptoms and practice of BSE (Mehrnoosh, Muhamad, Rosliza, Irmi, & Salmiah, 2011; Nor Afiah et al., 2011; Norsa'adah, Rusli, Imran, & Winn, 2005; Parisa, Mirnalini, Nor Afiah, & Hejar, 2008b; Laila, Khaldoon, Zuraidah, & Ahmed, 2011; Loh, Packer,

Yip, & Passmore, 2009; Pathmawathi, Oranye, Azimah, Nur Aishah, & Nora, 2013); patients' perception of cancer screening and early diagnosis (Maryam et al., 2013); practice and barriers towards BSE (Redhwan Ahmed, Dhekra Hamoud, Yuri, Chen, & Ali, 2011; Al-Dubai et al., 2012); practice and barriers towards mammography (Al-Naggar & Bobryshev, 2012) rural women's knowledge of breast cancer and screening methods (Maznah, Eng, Nur, & Nyuk, 2013); magnitude of diagnosis delay of breast cancer and its associated factors (Norsa'adah, Rampal, Rahmah, Naing, & Biswal, 2011); factors associated with BSE practice (Redhwan, Yuri, & Karim, 2012; Chee, Rashidah, Khadijah, & Intan, 2003; Maznah, Ng, Sadat, Ismail, & Bulgiba, 2011a); influence of sociodemographic factors on breast cancer delayed presentation (Sumarni et al., 2013); predictors of breast cancer screening (Maznah, Eng, Nur, Ranjit, & Lim, 2012); validation of Champion's Health Belief Model (CHBMS) among Malaysian women (Parisa, Mirnalini, Mohd Nasir, Hejar, & Nor Afiah, 2008a); experience of Malaysian women with breast cancer (Azlina, Imi Sairi, Zainal, Zulkifli, & Soon, 2013); causes of breast cancer and comparison among three races in Malaysia (Shadiya, Gogilawani, Akbariah, & Saidatul, 2012); and lifestyle and its association with breast cancer (Rozanim, Shamsul Azhar, & Noor Hidayah, 2006).

The commentary articles focused on assessing the implementation and implications of breast cancer prevention and control programmes in Malaysia (Maznah et al., 2011b); and evaluation of early detection and breast cancer treatment educational outreach programme message acceptance (Nur, Yip, Mohamed, Ng, & Farizah, 2007). As for the mini review articles, the core concern was epidemiology of breast cancer in Malaysia (Yip, Nur, & Ibraham, 2006).

Articles in the general stream were more concerned with providing an overview of the cancer spectrum in Malaysia Hisham & Yip, 2003, 2004; Lim, 2002, 2003). The common issue highlighted in this stream was the seriousness of the breast cancer pandemic as one of the leading causes of death among Malaysian women. These articles also unanimously suggested the importance of promoting early detection and screening as the fundamental approach in combating breast cancer along with the pertinent role of cancer treatment (facilities), palliation, rehabilitation (Lim, 2002, 2033) training and networking between the public and the non-governmental sector (Lim, 2002) in defining and refining the breast cancer strategy in the country.

CONTENT ANALYSIS FINDINGS

This section highlights and describes the contents analysis findings conducted on academic articles related to breast cancer awareness in Malaysia. The detailed information on the descriptive findings of these articles includes (1) thematic issues underlying the problem statement; (2) samples of respondents; (3) applied methodology; (4) outcome and dependent

variable measurement; and (5) determinants of breast cancer awareness in Malaysia.

Thematic Issues Underlying Problem Statement

Age standardised ratio (ASR), peak age, delayed presentation of breast cancer, risk factors and negative socio-cultural perception. The content analysis of 38 articles examined found the higher Age Standardised Ratio (ASR) and discussion on late peak age of breast cancer presentation in Malaysia in comparison to other Asian countries to be the main thematic issue underlying the problem statement. Data from Malaysia's National Cancer Registry (2006) were presented to support the evidence that one in every 19 Malaysian women have the possibility of developing breast cancer in their lifetime. The ASR for Malaysian women was at 39.3 per 100,000 of the population, which was much higher than for other Asian countries such as Beijing (24.6), Hiroshima (36.6), Chennai (23.9) and Seoul (20.8) (Lim & Halimah, 2008; Zainal & Nor Saleha, 2006). The discussion also depicted the variation in the breast cancer incidence rates among the three main ethnic groups in Malaysia. The ASR was highest at 59.9 per 100,000 of the population for Malaysian Chinese women and 54.2 per 100,000 of the population for Malaysian Indian women and the lowest at 34.9 per 100,000 of the population for Malaysian Malay women (Lim & Halimah, 2008).

The articles also described serious implication of delayed or late presentation of breast cancer among Malaysian women. Numerous articles in the review highlighted the alarming situation related to late stage breast cancer presentation in the country (Yip & Ibrahim, 2006; Abdullah, Abd, Rampal, & Al-Sadat, 2011; Zarihah et al, 2003; Hisham & Yip, 2003, 2004). As reported in the "Third National Cancer Registry Report" (2008), 30% to 40% of Malaysian women presented at later stages (Stage 3 and 4) of breast cancer compared to their counterparts in other developing countries (usually at Stage 1 and 2) (Yip & Ibrahim, 2006; Abdullah et al., 2011). Findings from preliminary work on stages of breast cancer diagnosis undertaken by the Penang Cancer Registry (which is a regional cancer register) during the period 1994-1998 reported that only 15.8% comprised Stage 1 breast cancer cases, while 46.9% were Stage 2 cases, 22.2% were Stage 3 cases and 15.5% were Stage 4 cases (Zarihah et al, 2003). Another study conducted between 1998 and 2001 at Hospital Kuala Lumpur (HKL) testified that 50 to 60% of breast cancer cases were presented at Stage 3 or 4 and only 5.2% were diagnosed during mammogram screening (Hisham & Yip, 2003, 2004).

Next, the review revealed that the peak age for breast cancer presentation in Malaysia was in the range of 40-49 years (Najwa et al., 2013). Apart from this, data from the University Malaya Medical Centre reported that the number of newly diagnosed breast cancer cases had increased from 60 to 330, of which 50% occurred at the age of below 50 years old (between

40-49) since the establishment of breast cancer in 1993 until 2004 (Yip et al., 2006). The largest group was Malaysian Malays (48%), followed by Malaysian Chinese (35%) and Malaysian Indians (17%). In fact, some of the articles reviewed also associated the peak age of breast cancer with the much younger age of 40-49 among Malaysian women compared to 50 to 59 in Western countries, where woman faced rapid changes in lifestyle resulting from industrialisation, a sedentary lifestyle and consumption of unhealthy food (Rozanim, Shamsul Azhar, & Noor Hidayah, 2006; Shadiya, Gogilawani, Akbariah, & Saidatul, 2012).

Apart from this, another significant theme confronting breast cancer awareness in Malaysia was the issue of negative socio-cultural perception. It was reported that socio-cultural perception of breast cancer among Malaysians was an important contributor to the presentation of breast cancer at the advanced stage in Malaysia (Hisham & Yip, 2003). Among the socio-cultural factors that projected breast cancer in a negative light was a strong belief in traditional medicine, negative perception of the disease, poor education, poverty, fear and denial (Hisham & Yip, 2004). It is suggested that improvised public health education and communication can inhibit such socio-cultural perception among Malaysian women to create awareness on health-seeking behaviour.

Target Groups

The target audience on breast cancer awareness studies in Malaysia covered a wide range of the population, including students (Hadi et al., 2010a; Redhwan Ahmed et al., 2011; Mehrnoosh et al., 2011), teachers (Parisa et a., 2008a), female staff at public universities (Nor Afiah et al., 2011; Maznah et al., 2011a), production workers in electronic factories (Chee et al., 2003), general samples of various ethnic groups of women (rural and urban) (Hadi et al., 2010b; Maznah et al., 2013; Redhwan et al., 2012; Maznah et al., 2012; Norsa'adah et al., 2005; Kanaga et al., 2011; Sami Abdo et al., 2011; Al-Dubai et al., 2012; Al-Naggar & Bobryshev, 2012; Rosmawati, 2010) as well as among women diagnosed with breast cancer and breast cancer patients (Maryam et al., 2013; Norsa'adah et al., 2011; Sumarni et al., 2013; Azlina et al., 2013; Loh & Chew, 2011; Laila et al., 2011; Rozanim et al., 2006), among hospital personnel (Abdullah et al., 2011) and women with a positive family history of breast cancer (Pathmawathi et al., 2013). Overall, the selection of the target segment of respondents to breast cancer awareness could be grouped into three main categories, namely student, breast cancer patients and specific interest groups.

The student population accounted for three studies (n=3). The selection of respondents comprised all races of students from public and private universities

i.e. Universiti Sains Malaysia (USM), University Putra Malaysia (UPM) and the Management and Science University (MSU) (Hadi et al., 2010a; Mehrnoosh et al., 2011; Redhwan Ahmed et al., 2011). Student respondents ranged in age from 15 to 44 years old comprising different levels of education including undergraduate to post graduate. The most frequent variables assessed among the student segment were related to breast cancer general knowledge, risk factors, symptoms, availability of screening examinations, perception of management and breast cancer treatment and also BSE practice.

Studies on breast cancer awareness also focused on exploration related to breast cancer patients histologically confirmed as having breast cancer in medical centres. These studies typically explored factors associated with delayed presentation of breast cancer, perceived health belief (benefit, barriers, cues to action, risk), a fatalistic view of cancer, experience and illness transition process, self-discovery of symptoms and seeking-treatment behaviour. The identification and selection of respondents was concentrated at centres that provided oncology services such as the Penang General Hospital, Kuala Lumpur Hospital, Radiotherapy and Oncology Clinic in Kuala Lumpur and Kelantan Public Hospital.

Apart from this, the review also found that the researchers were more interested in gathering specific knowledge on breast cancer from very specific categories of respondents. Among the categories were high risk groups such as women with a positive family history of breast cancer and the most influential group, as they could act as advocators for breast cancer knowledge and awareness, comprising teachers and staff at public universities and hospitals. It was postulated that the selection of specific segments of the population compared to the general population would enhance researcher knowledge on the challenges to providing services regarding breast cancer awareness and screening programmes (Nor Afiah et al., 2011).

Applied Methodology

Out of the total of 38 articles reviewed, the majority opted for the cross-sectional design of study. The cross-sectional study has become the dominant approach used by many social scientists for evaluating knowledge of breast cancer risk factors, symptoms and methods of screening. Of the 19 cross-sectional design studies (n=19), four (n=4) used the face-to-face interview using a validated questionnaire, while 15 (n=15) used the self-administered questionnaire. As for the sampling methods, four studies (n=4) used convenient sampling, five (n=5) used systematic sampling, another four (n=4) used simple random sampling, two used cluster sampling and one used multi-stage random sampling, while the last used purposive sampling.

Relatively, only a small portion of the studies used qualitative methodology to collect information on perception of cancer screening and early diagnosis. The qualitative approach was used for collecting

in-depth information from cancer patients (Maryam et al., 2013; Azlina et al., 2013), surgical outpatients and the oncology clinics at the public hospitals in Penang, Kuala Lumpur and Kelantan. In both studies, the semi-structured interview was conducted to capture the major themes of awareness of breast cancer, perceived benefit, barriers to cancer screening, cues to action, uncertainty about the experience of illness, transition process and fatalistic belief regarding breast cancer (Maryam et al., 2013; Azlina et al., 2013).

The review also found three (n=3) studies that employed the matched case-control study approach at the referral hospital in Kelantan (Norsa'adah et al., 2005), the Penang General Hospital (Laila et al., 2011) and the Breast Clinic Hospital, Kuala Lumpur (Rozanim et al., 2006). Only one study used the pre-intervention study setting to determine factors associated with the acceptance of breast cancer screening among the general population (Maznah et al., 2012). One pre-test and post-test survey were conducted by Loh and Chew (2011), and the findings indicate that self-reported monthly BSE practices had increased from 17% at pre-test to 67% at post-test. In this research, a mixed method explanatory study was conducted among 707 samples of hospital personnel to determine the factor and barriers associated with mammography screening. Only one study was conducted to understand the health disparity on health literacy. A secondary analysis of data collected during the clinical trial among newly breast cancer-diagnosed women was performed to examine baseline knowledge (Loh et al., 2009) among the women.

Outcome and Dependent Variables Measurement

The findings portrayed a multitude of dependent variables used to measure breast cancer awareness in Malaysia. Awareness accounted for the highest percentage of measured dependent variables. The measurement deployed on assessing awareness included risk factors for breast cancer, source of information, perception of risk, family history of breast cancer and perception of treatment. Besides assessing awareness, a few of the studies also attempted to identify the relationship between knowledge of breast cancer risk, screening and symptoms of breast cancer on the practice of BSE, CBE and mammography (Mehrnoosh et al., 2011; Maznah et al., 2013).

Apart from awareness, perception of cancer screening accounted as the second highest dependent variable identified in the studies of breast cancer awareness in Malaysia. The perception measurement included health belief (benefit, risk and barrier) and perception towards treatment and outcomes. Meanwhile, the independent variables included demography, family history, factors associated with delay diagnosis; screening behaviour, source of information on breast cancer and breast cancer screening, lifestyle and its association with breast cancer and barriers to screening behaviour.

The self-reported practise of BSE, CBE and mammography (i.e. whether the individual had ever performed screening and frequency of screening) were denoted as the main outcome measurements. The outcome measurements were reported via quantitative and qualitative surveys through the semi-structured interview, face-to-face interview and questionnaire. Meanwhile, in the qualitative exploration studies, the measurement of outcome was presented in the form of thematic content analysis comprehension. The main method used to collect the measurement outcome in qualitative study was the interview.

Determinant of Breast Cancer Awareness in Malaysia

The analysed articles disclosed that various factors were capable of determining or influencing the effectiveness of the breast cancer awareness promotion effort in Malaysia. Based on the systematic review of the articles, the knowledge of breast cancer, perception of breast cancer management and treatment outcome were found to be important predictors of breast cancer awareness in several studies (Hadi et al., 2010a, 2010b). Individuals who viewed themselves as knowledgeable about breast cancer risk factors and aware of the importance of early detection are more likely to actively initiate the screening practice compared with those who perceived themselves as not knowledgeable and unaware.

Apart from this, the results also found that university students had inadequate knowledge of breast cancer, the practice of BSE and recommendation to take advantage of CBE (Hadi et al., 2010a; Mehrnoosh et al., 2011). Overall, the results indicates that there was a deficit of knowledge of risk factors, signs and symptoms and a low response rate to the practice of BSE. Redhwan Ahmed et al. (2011) found that fear of being diagnosed with breast cancer, lack of knowledge and not having symptoms were the main barriers for not practising BSE among university students. Intensifying the breast cancer awareness campaign to focus on the importance of early detection and reporting of any abnormalities to the health authorities are suggested as a solution to overcoming inadequate knowledge and awareness among university students.

Studies of breast cancer patients discovered that a negative attitude towards treatment, dependence on alternative therapy, false-negative diagnostic tests, breast ulcers, non-cancer interpretation and palpable axillary lymph nodes played an important role in delayed presentation and eventually to delayed diagnosis in Malaysia (Norsa'adah et al., 2011). Another study conducted among patients diagnosed with primary breast cancer established that divorced/widowed women and women who have never performed BSE were more likely to delay breast cancer presentation to health authorities (Sumarni et al., 2013). Therefore, it is suggested that breast cancer awareness campaigns should incorporate the call for early diagnosis and treatment (before the tumour enlarges, spreads to the lymph nodes and is classified as being in metastasis stage)

together with the educational promotion of early detection. In a separate study by Norsa'adah et al. (2005) on risk factors and association with breast cancer among 147 histologically confirmed breast cancer patients, risk factors such as null-parity, obesity, the use of contraceptive pills and family history were significantly associated with breast cancer. Thus, it is suggested that the importance of having an ideal BMI, bearing children and caution among women with a family history of breast cancer on the use of contraceptive pills should be integrated in promoting risk factors.

A study on pre-intervention community survey conducted by Maznah et al. (2012) established that women who had a previous experience of attending CBE had a strong influence in promoting BSE and mammogram. Furthermore, the findings also posited that relatively, women who received strong support from their husband were more likely to attend CBE compared with women who had an unsupportive husband. Thus, the promotion of breast cancer awareness in Malaysia is urged to change in approach of promoting CBE from opportunistic screening to more active, regular CBE practice as well as to include awareness activities among male respondents. Nor Afiah et al. (2011) found that the mass media were the major source of information on breast cancer screening (92.2%), followed by health promotion activities and health education brochures (73.8%), books (69.6%), the Internet (66.9%), friends (64.8%), the health team (58.7%), family members (35.2%) and other

sources (2.1%). Meanwhile, the priority on preferred sources of information on breast cancer screening were the health team (71.4%), health education brochures (54.8%), the mass media (50.3%), the Internet (49.4%), health promotion activities (47.3%), books (34%), friends (21.7%), family members (9.6%) and other sources (0.9%). Given the fact that the health team and health education brochures are the top two preferred choices of information source among the respondents, it is suggested that appropriate measures be mobilised to plan and disseminate information to the public.

Studies on the relevancy of advocating BSE as part of breast cancer awareness screening found that BSE practice needs to be instilled as part of information dissemination to encourage women to be aware of the health of their breasts and be able to identify any changes before reporting to health authorities (Chee et al., 2003). Furthermore, Maznah, Ng, et al. (2011) proposed that BSE was still a relevant screening tool as findings indicated that 85% of breast lumps were detected by respondents themselves while conducting the BSE. It is suggested that BSE practice is capable of increasing the chances of detecting breast abnormality, leading to earlier breast cancer discovery. According to Loh and Chew (2011), although the effectiveness of BSE practice still remains unsolved (i.e. to lower mortality and increase of anxiety), the results of educational interventional studies provided evidence that 80% of breast cancer survivors had self-detected their lumps.

The findings from qualitative studies using the in-depth interview found that there was significant interaction between health belief determinants such as personal susceptibility, perceived barriers (financial constraint; lack of knowledge), perceived benefit (lack of trust in screening and negative results) and negative behaviour towards cancer screening in terms of screening behaviour (Maryam et al., 2013). Perhaps the most common finding in the literature on qualitative studies on cancer communication was the inadequacy and misconception of breast cancer awareness, treatment and the future of breast cancer patients (Azlina et al., 2013; Maryam et al., 2013).

DISCUSSION ON GAPS AND AVENUES FOR FURTHER RESEARCH

This section leads a discussion on the gaps in the review and avenues for further investigation to cultivate, instil and ameliorate the promotion of breast cancer awareness in Malaysia.

This article has attempted to analyse the common issues and challenges portrayed in past studies on breast cancer awareness in Malaysia. The systematic review of past literature indicated inadequate knowledge of breast cancer and lack of practice of BSE among young Malaysian women were the most common issues inhibiting the success of public health intervention health programmes. Thus, the great challenge is to efforts to enhance health communication channels in creating awareness of breast

cancer among young women in Malaysia. The findings indicated that there is an urgent need to develop continuous and effective health communication on breast health awareness campaigns among the present generations of young women in Malaysia (Hadi et al., 2010a; Mehrnoosh et al., 2011; Redhwan Ahmed et al., 2011). Increasing breast cancer knowledge concerning the risk factors associated with breast cancer and the importance of early detection and cultivating an attitude of reporting any unusual breast changes to the health authorities will definitely help to reduce the mortality rate and health expenditure and build a healthy nation. Moreover, in the context of cultural issues and breast cancer awareness, it is suggested that more in-depth research is required to synthesise understanding of avoidance and ignorance of early detection methods. More in-depth information should be obtained through qualitative studies on the issue of BSE practice avoidance (Mehrnoosh et al., 2011). Besides this, Loh and Chew (2011) proposed that there was also a need to gain more in-depth investigation to understand the indicators of health disparity on breast cancer screening among different age, socioeconomic and educational backgrounds as well as among different ethnicities in Malaysia.

Apart from this, it was also found that little attention was given to the utilisation of theory and models as a foundation in the literature on breast cancer awareness research in Malaysia. Out of 31 research papers on breast cancer awareness, only three (n=3) provided a theoretical or health

behaviour model as the foundation of the study (Parisa et al, 2008a; Pathmawathi et al., 2013; Maryam et al., 2013). Among them was the adapted and modified version of the Champion Health Belief Model Scale (Champion, 1993) of the Health Belief Model. This model was used as the foundation for developing data collection instruments (questionnaire) (Parisa et al., 2008a; Pathmawathi et al., 2013). The dimensions of the Champion Health Belief Model includes the perceived barrier, susceptibility, benefit, health motivation (including general health, fear of breast cancer, fear of long-term effects of breast cancer, lack of confidence and preventive health practice). The study by Parisa et al. (2008a) ascertained that the translated version of the Champion Health Belief Model Scale was a valid and reliable tool for measuring health beliefs that influenced breast cancer screening (i.e. BSE, CBE and mammography) behaviour among Malaysian women. Thus, there is a need for further systematic study with appropriate attention on the use of the theory or health-decision model. It is important to note that the use of theory and model can make a difference in developing a strong foundation of the research framework, which gives greater possibilities in measuring the outcomes of any health intervention programmes.

The findings also indicate the need for future studies to address the relation of the barriers to screening patterns with other health belief variables such as perceived benefits, cues to action and susceptibility to allowing prediction of screening behaviour

and the variables to be integrated in disseminating health promotion messages (Maryam et al., 2013). Special attention should be given to understanding the impact of breast cancer illness and cultural influence on the survivorship plan among breast cancer patients for development of an appropriate education and supportive programme (Azlina et al., 2013).

In the context of breast cancer awareness among women from diverse geographical locations (urban and rural), it is suggested that different approaches and efforts are required to address the different sets of influencing factors (Maznah et al., 2013). Studies by Kanaga et al. (2011) and Maznah et al. (2013) confirmed that awareness of early detection is higher among women in urban areas compared with women in rural areas. Several factors including social status, level of education and knowledge differences among women in urban and rural areas are associated with different levels of awareness. According to Kanaga et al. (2011), there is an urgent need to intensify breast cancer awareness and enlarge the availability of screening centres in rural areas.

Another important issue highlighted related to the study on breast cancer awareness in Malaysia was the increasing breast cancer incidence rate among young women. According to Kanaga et al. (2011), the pattern of breast cancer occurrence in Malaysia showed that women at a very young age, compared with Western societies, were affected; this involved the factor of menopause and its impact

on cancer incidence. Numerous studies have suggested that a tailored health educational intervention is required to increase awareness among young women (Redhwn Ahmed, Low, & Zaleha, 2010; Sami Abdo et al., 2011). Thus, the challenge for health authorities and the related agencies in Malaysia is to draft and execute massive nationwide health promotion campaigns among the younger generations of Malaysian women by networking with schools and higher educational institutions. Among possible strategies that could be explored are the promotion of breast cancer activities by incorporating health communication channels such as social networking applications and sites that are synonymous and relevant to younger generations.

CONCLUSION

In conclusion, it is hoped that this paper has shed some useful insights into the issues and challenges on breast cancer awareness research in Malaysia and particularly among those scholars who are interested in understanding the fundamental situation of breast cancer awareness not only within the Malaysian context but also in the field of health promotion campaigns.

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