

RESEARCH ARTICLE

Association of Knowledge and Cultural Perceptions of Malaysian Women with Delay in Diagnosis and Treatment of Breast Cancer: a Systematic Review

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Abstract

Background: Breast cancer is the most common cancer and the leading cause of cancer mortality among women of all ethnic and age groups in Malaysia. Delay in seeking help for breast cancer symptoms is preventable and by identifying possible factors for delayed diagnosis, patient prognosis and survival rates could be improved. **Objectives:** This narrative review aimed to understand and evaluate the level of in-depth breast cancer knowledge in terms of clinical breast examination and breast self-examination, and other important aspects such as side-effects and risk factors in Malaysian females. Since Malaysia is multicultural, this review assessed social perceptions, cultural beliefs and help-seeking behaviour in respect to breast cancer among different ethnic groups, since these may impinge on efforts to 'avoid' the disease. **Materials and Methods:** A comprehensive literature search of seven databases was performed from December 2015 to January 2015. Screening of relevant published journals was also undertaken to identify available information related to the knowledge, perception and help-seeking behaviour of Malaysian women in relation to breast cancer. **Results:** A total of 42 articles were appraised and included in this review. Generally, women in Malaysia had good awareness of breast cancer and its screening tools, particularly breast self-examination, but only superficial in-depth knowledge about the disease. Women in rural areas had lower levels of knowledge than those in urban areas. It was also shown that books, magazines, brochures and television were among the most common sources of breast cancer information. Delay in presentation was attributed mainly to a negative social perception of the disease, poverty, cultural and religion practices, and a strong influence of complementary and alternative medicine, rather than a lack of knowledge. **Conclusions:** This review highlighted the need for an intensive and in-depth breast cancer education campaigns using media and community health programmes, even with the existing good awareness of breast cancer. This is essential in order to avoid misconceptions and to frame the correct mind-set about breast cancer among women in Malaysia. Socio-cultural differences and religious practices should be taken into account by health care professionals when advising on breast cancer. Women need to be aware of the risk factors and symptoms of breast cancer so that early diagnosis can take place and the chances of survival improved.

Keywords: Breast cancer - knowledge - perception - attitude - health-seeking behaviour - women - Malaysia

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Introduction

Cancer is a leading cause of morbidity and mortality worldwide, accounting for approximately 14 million new cases and 8.2 million deaths in 2012 (Bray et al., 2013; Ferlay et al., 2013). After lung cancer, breast cancer is the second most common cancer in the world (Yip et al., 2006; World Health Organization, 2014), and is the most frequently occurring cancer in women globally, comprising 25% of all cancer cases diagnosed in 2012 (World Health Organization, 2012). Breast cancer affects women both in more and less developed regions, although

the incidence is higher in less developed regions (Yip et al., 2006; World Health Organization, 2014). Indeed, there is a significant geographical variation in the incidence of the disease, with rates ranging from 27 per 100,000 people in Middle Africa and Eastern Asia to 96 per 100,000 in Western Europe (Ferlay et al., 2013). In terms of mortality, breast cancer is the fifth leading cause of overall cancer-related deaths (522,000 deaths) (Yip et al., 2006; World Health Organization, 2014). It is the primary cause of cancer death in women in less developed regions and the second most common cause in more developed regions with 14.3% and 15.4% of total deaths respectively (Bray et

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al., 2013; Ferlay et al., 2013). Compared to the incidence rates, the mortality rates exhibit less variation between world regions because of improved survival of breast cancer in high-incidence developed regions (Bray et al., 2013; Ferlay et al., 2013).

In Peninsular Malaysia and East Malaysia, breast cancer is the most common cancer among females and also the leading cancer among population regardless of sex and ethnic groups (Omar and Ibrahim-Tamim, 2011). There were 3242 female breast cancer cases registered in the National Cancer Registry for 2007, representing 18.1% of all cancer cases and 32.1% of all female cases registered. This presents an age-standardized ratio of breast cancer incidence of 29.1 per 100,000 women. This rate differs between the three main races in Malaysia, however: the Malays, Chinese and Indians. The age standardized incidence is highest among Chinese, with 38.1 per 100,000 population followed by Indians and Malays an age-standardized ratio of 33.7 per 100,000 and 25.4 per 100,000 population respectively (Omar and Ibrahim-Tamim, 2011). This difference could be attributed to several risk factors such as reproductive (Chinese are more likely to have fewer children and to have their first child later), environmental and dietary factors (Chinese tend to breast-feed for shorter periods) (Yip et al., 2006). Of the 3242 cases of breast cancer among females in Malaysia in 2007, approximately 48% were in patients below the age of 50 years, with 40- to 49-year-olds being the most prevalent age group. The highest incidence rate peaks in the 50-59 year age group, however, after which the incidence rate declined (Omar and Ibrahim-Tamim, 2011).

In Malaysia, 61% of women present in stages 2 and 3, which indicates that Malaysian women generally present with later stages of breast cancer compared to their counterparts in the developing countries (Hisham and Yip, 2004; Yip et al., 2006; Omar and Ibrahim-Tamim, 2011). Delays in case presentation and detection are partially responsible for the advanced stage at diagnosis, and this in turn affects the prognosis for breast cancer. Several screening methods are available to make early detection possible. The World Health Organization has recommended that mammography screening is highly effective but this is only practical in countries with a good health infrastructure that can afford long-term, organized, population-based screening programmes (World Health Organization, 2012). In developing countries with limited or no resources for mammography screening, such as Malaysia, low-cost screening approaches such as clinical breast examination (CBE) and breast self-examination (BSE) should be recommended and implemented for early detection and diagnosis of breast cancer (Yip et al., 2006; World Health Organization, 2012). Keeping in view the National Cancer Registry data showing a high incidence and advanced presentation of breast cancer among Malaysian women, it is imperative to identify predictive factors for delays in patients receiving treatment (Omar and Ibrahim-Tamim, 2011). This narrative review, therefore, aims to understand and evaluate the level of in-depth breast cancer knowledge in terms of CBE and BSE practice, and other important aspects such as side-

effects and risk factors. Since Malaysia is multicultural, it is equally necessary to assess social perceptions, cultural beliefs and help-seeking behaviours among different ethnic groups in respect to breast cancer, since these may impinge on efforts to 'avoid' the disease. By recognizing these factors, policymakers can better formulate strategies and employ activities that can help to improve the delayed diagnosis and treatment of breast cancer in Malaysia.

Methodology

A literature search was performed between December 2013 and January 2015 to identify published studies related to the knowledge, perception and health-seeking behaviour of Malaysian women in respect to breast cancer.

Search strategy

The search for articles was performed in a systematic manner using different databases including PubMed, Embase, EbscoHost, SCOPUS, International Pharmaceutical Abstracts, Cochrane and Web of Science, using the Boolean operators for combinations of the following key words: breast cancer, quantitative research, Malaysia, female, Malaysian women, knowledge, attitude, perception, help-seeking behaviour and health-seeking behaviour. The different combinations of key words were used. Studies selected were based on a multi-stage screening of key words, titles, abstracts, and the full text of the articles, respectively, to ensure the relevance of the included articles. In total, 3985 papers were identified by all electronic databases [n=3981] and Google searching [n=4] of the journals. A two-stage screening process, encompassing title screening followed by abstract screening, led to the exclusion of many of the initially identified articles, leading to n=69 papers being entered into full text screening. Thirty-eight papers from results of the electronic search were assessed to be relevant through full-text screening, plus an additional four papers obtained through manual searching, making a total of n=42. The screening process is illustrated in Figure 1.

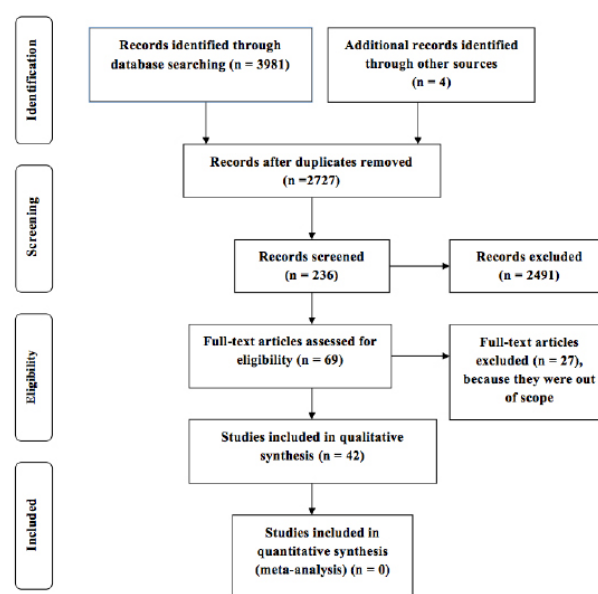


Figure 1. PRISMA Flow Diagram

Inclusion and exclusion criteria

In this narrative review, only literature which discussed the following topics in respect to women in Malaysia was included: breast self-examination, clinical breast examination and mammography, prevalence, perception or attitudes towards breast cancer, help-seeking or health-seeking behaviours relating to the use of complementary and traditional medications. Quantitative studies written in English and published from the inception of the databases up to the current date (January 2015) were included. Studies with a qualitative approach, and those which did not deal with females or which had an inadequate focus on knowledge, perception and health-seeking behaviour, of which were focused on countries other than Malaysia were excluded.

Results

Knowledge of breast cancer

The majority of the studies determined the level of knowledge of breast cancer among Malaysian women based on several aspects such as general knowledge of breast cancer, causes, risk factors, symptoms of breast cancer and screening tests (Abdul-Hadi et al., 2010b; Khan et al., 2010; Akhtari-Zavare et al., 2011; Dahlui et al., 2012; Che et al., 2014; Yusof et al., 2014). Overall, females in Malaysia had a good awareness of breast cancer (Abdul-Hadi et al., 2010b; Khan et al., 2010; Akhtari-Zavare et al., 2011; Dahlui et al., 2011; Dahlui et al., 2012; Che et al., 2014; Yusof et al., 2014). Most respondents indicated that they heard about breast cancer mainly from sources such as books, magazines, brochures and television (Parsa and Kandiah, 2010; Al-Dubai et al., 2011; Akhtari-Zavare et al., 2013). While Dahlui et al in 2012 showed that most of the respondents scored above average, others reported that most females had poor knowledge, especially in respect to the risk factors associated with breast cancer, with some being unaware that they were in a high risk group for contracting breast cancer (Dahlui et al., 2011; Subramanian et al., 2013; Che et al., 2014). Similar results were found in Loh et al. (2009) who revealed that a high proportion of women were unaware of their breast cancer profile. The author attributed this factor to the lack of information in the media and from professionals (Loh et al., 2009). Other study also revealed poor knowledge among women aged 15 years old and above by having a total mean knowledge of 60.4% (Rosmawati, 2010a).

Some studies evaluated knowledge based solely on awareness and practice of screening tests such as breast self-examination, clinical breast examination and mammography. Several studies showed education level to have a positive association with each screening method, with BSE being the most statistically significant method (Chee et al., 2003; Parsa et al., 2008; Dunn et al., 2010; Dunn and Tan, 2011; Akhtari-Zavare et al., 2013). Other articles highlighted a lack of knowledge as the main barrier to practicing BSE (20.3%) (Parsa and Kandiah, 2010; Al-Naggar et al., 2011). Women who are more aware of the benefits of early detection of breast cancer are more likely to practice BSE and CBE (Kanaga et al., 2011; Akhtari-Zavare et al., 2013; Subramanian et al.,

2013). Even though awareness of screening tests was generally good in Malaysia, there were very low rates of practice among Malaysian females (Abdul-Hadi et al., 2010b; Abdul-Hadi et al., 2010a; Al-Dubai et al., 2012; Al-Naggar and Bobryshev, 2012; Al-Naggar et al., 2012; Akhtari-Zavare et al., 2013; Subramanian et al., 2013; Che et al., 2014). As seen in Al-Dubai et al's study, 81.1% of the respondents were aware of breast cancer but only 55% actually practiced BSE due to a lack of knowledge of the correct method of performing BSE (Al-Dubai et al., 2012). This was also the reason conducted by Rosmawati in 2010 (Rosmawati, 2010a). Similarly, Al-Naggar and Bobryshev's study reported moderately good awareness but poor practice of mammography since 53.5% did not know where to go for the test (Al-Naggar and Bobryshev, 2012). However, some results also showed a low percentage of respondents who were aware of the availability of mammogram tests or who had ever taken a mammogram (Rosmawati, 2010b).

Several articles showed that ethnicity, age, educational level and social or employment status significantly influenced (i.e. are positively associated with) breast cancer knowledge (Chee et al., 2003; Abdul-Hadi et al., 2010b; Kanaga et al., 2011; Dahlui et al., 2012; Norlaili et al., 2013; Che et al., 2014). In addition, Che et al's study, which involved female adolescents in university, college and secondary school settings revealed high awareness of breast cancer and BSE, with a response rate of 87.6% and 60.6% respectively, contrasting with an overall knowledge of BSE of only 40.4% (Che et al., 2014). College or university degree holders and government sector employees generally have better knowledge (Chee et al., 2003; Abdul-Hadi et al., 2010b; Dahlui et al., 2012; Norlaili et al., 2013). Females who have a family history of breast cancer also demonstrated the highest knowledge level of BSE (Che et al., 2014), although Yip et al found that women with a family history of breast cancer were not going for routine breast screening as they should theoretically (Yip et al., 2008). On the other hand, there were studies that had an opposite result in which education level and income have no relationship with breast cancer awareness (Dahlui et al., 2011; Khan et al., 2011). This is further supported by Abdul-Hadi et al who showed limited knowledge of the risk factors and symptoms of breast cancer despite good education at university level (Abdul-Hadi et al., 2010a).

Indian women were shown to be the ethnic group with the least knowledge of breast cancer compared to their Chinese and Malay counterparts (Abdul-Hadi et al., 2010b). Although several articles showed that Indian women had higher levels of knowledge if they had attended higher education or had a positive family history of breast cancer (Al-Dubai et al., 2011; Baig et al., 2011). Baig et al specifically categorized the different knowledge aspects that each ethnic group were better (Baig et al., 2011). Che et al and Dahlui et al reported that those of Malay ethnicity demonstrated higher levels of knowledge than Indian and Chinese ethnic groups (Dahlui et al., 2013; Che et al., 2014). Apart from that, rural women were shown to have less awareness compared to those living in urban areas (Kanaga et al., 2011). In terms of knowledge,

women in rural areas had an average to poor score (Farid et al., 2014). Comparing the East Coast and West Coast of Malaysia, it was revealed that women in Pahang (East Coast) had highest awareness as compared to Perak (West Coast) (Norlaili et al., 2013). Both states showed similar results with respect to the greatest levels of awareness being among Malay women, followed by Chinese and Indian, in the 40 to 49 years' age group and with higher level of education (Norlaili et al., 2013). These results are consistent with those shown in Al-Dubai et al (Al-Dubai et al., 2012). Comparing East Malaysia and West Malaysia, it was revealed that women in East Malaysia (Sabah) had a lower awareness of breast cancer (Leong et al., 2007). This could be due to the strong influence of traditional and cultural beliefs of different tribes which will be discussed further later in this article.

Positive perceptions and attitudes

In some of the study population they demonstrated both positive and negative views depending on the items described in the questionnaire. More than half of the respondents had correct beliefs with regards to breast cancer management and its outcomes (Abdul-Hadi et al., 2010b; Abdul-Hadi et al., 2010a). They believed that they will enjoy an improved quality of life after receiving the treatment, especially for young patients (Abdul-Hadi et al., 2010a; Baig et al., 2011). Besides that, the majority of the women residing in Shah Alam, where the study was conducted, showed very positive attitudes towards mammography screening and 87% of them were keen to gain more information on mammography (Al-Naggar and Bobryshev, 2012). This optimistic attitude is further reflected in other studies that emphasized the need for BSE in order to improve the chances of survival (Rosmawati, 2010a; Al-Naggar et al., 2012). Although knowledge of BSE practice was low (34.1%) in Rosmawati's study, the results indicated that women have no fear in thinking about or detecting breast cancer which leads to frequent BSE practice (Rosmawati, 2010a). Furthermore, it was shown that more than 70% of respondents felt that BSE is not time consuming or troublesome (Akhtari-Zavare et al., 2013). Apart from that, the extent of advice from health care professionals and from health campaigns was highlighted as constructive measures to encourage positive attitudes to breast health in women (Dahlui et al., 2012).

Negative perceptions and attitudes

As mentioned above, several studies expressed negative perceptions of breast cancer treatment, since 60% to 90% of respondents considered breast cancer treatment as a long-term and painful process (Abdul-Hadi et al., 2010b; Abdul-Hadi et al., 2010a; Rosmawati, 2010b; Abdullah et al., 2011; Baig et al., 2011). In a study done by Al-Dubai et al, knowledge of breast cancer treatment was very limited, since two-thirds of women thought that mastectomy was the only available option (Al-Dubai et al., 2011). In line with this, the majority of respondents wrongly believed that hospital admission is required to perform a mammogram (Rosmawati, 2010b). This believed need for hospitalization prior to mammography reduced their interest in fully utilising mammograms.

Some articles emphasized the significance of a woman's role as a wife, mother and female in Asian society (Hisham and Yip, 2004; Khan et al., 2010; Khan et al., 2011). Any disruption to the traditional woman's role in the family will cause them to refuse breast cancer treatment (Hisham and Yip, 2004; Khan et al., 2010; Khan et al., 2011; Norsa'adah et al., 2011). This is mainly due to the fear of being abandoned or divorced by their husbands after mastectomy (Hisham and Yip, 2004; Khan et al., 2010; Norsa'adah et al., 2011). Some also developed a strong sense of denial as they thought that cosmetic and cultural factors would jeopardize their role if they underwent treatment for breast cancer, especially among Malay women (Khan et al., 2010; Khan et al., 2011). As such, patients were more inclined to opt for alternative therapy as a way to avoid surgery (Norsa'adah et al., 2011). Additionally, some had misconceptions about breast cancer symptoms causing them to be prone to attributing new symptoms to less serious conditions instead of recognising a life-threatening disease, thereby avoiding proper treatment (Norsa'adah et al., 2011).

Most studies pointed out that fear, worry and the perception of BSE as being ineffective and unimportant are among the most commonly reported negative socio-cultural perceptions about breast cancer (Loh and Chew, 2011; Al-Dubai et al., 2012; Dahlui et al., 2012; Subramanian et al., 2013). Females in Malaysia tend to fear being diagnosed with breast cancer or worry about detecting breast lumps for various reasons (Al-Naggar et al., 2011; Al-Dubai et al., 2012; Subramanian et al., 2013). Similarly, a handful of participants who had mammogram screening from several studies reported that they were fearful of the test result, as well as of radiation and its side-effects (Parsa et al., 2008; Rosmawati, 2010b; Abdullah et al., 2011; Al-Naggar and Bobryshev, 2012). Some also feared that surgery may disturb the tumour, provoking it to grow and spread to other parts of the body (Khan et al., 2010; Khan et al., 2011). Other common reasons for not performing mammography or BSE screening include the absence of an apparent need to perform BSE, no family history of breast cancer, a lack of confidence to perform BSE or low confidence in the ability of health professionals to detect abnormalities, a high confidence in their health status, procedural cost, time constraints, embarrassment and forgetfulness (i.e. forgetting about appointments) (Parsa and Kandiah, 2010; Abdullah et al., 2011; Al-Dubai et al., 2011; Kanaga et al., 2011; Parsa et al., 2011; Al-Dubai et al., 2012; Al-Naggar and Bobryshev, 2012; Dahlui et al., 2012; Akhtari-Zavare et al., 2013; Subramanian et al., 2013; Farid et al., 2014). Some respondents also had the belief that they should not touch their bodies, as discussed in Al-Dubai et al (Al-Dubai et al., 2012).

Health-seeking behaviour

There are factors other than lack of knowledge, and various socio-cultural perceptions that are in play when women choose to initiate health-seeking behaviour as preventive measures, or to seek medical help for serious conditions. Some of the reported barriers to seeking early treatment include the lack of aspects such as social

support (Rosmawati, 2010a; Al-Dubai et al., 2011), trust in the system, time, health insurance coverage, training, physician recommendation, breast cancer educational materials and transportation, language barriers, having a low income, being a single woman and not having any breast related complaints (Rosmawati, 2010b; Kanaga et al., 2011; Al-Naggar and Bobryshev, 2012; Beshir and Hanipah, 2012; Farid et al., 2014). These issues are greatly magnified among the Orang Asli or indigenous people, as will be explained later (Farid et al., 2014). Several articles show that women are more likely to have their breasts screened when they receive encouragement from their husbands (Dahlui et al., 2012; Dahlui et al., 2013; Farid et al., 2014). Malaysian women who are more likely to delay seeking treatment are those of Chinese ethnic origin, unmarried and divorced or widowed women, and those who had never performed BSE (Ghazali et al., 2013).

Apart from that, several articles highlighted the use of complementary alternative medicine (CAM) or traditional methods (Hisham and Yip, 2004; Leong et al., 2007; Chui et al., 2014). Hisham and Yip as well as Khan et al pointed out that ignorance, fear and denial were the reasons that women seek alternative and traditional medicine (Hisham and Yip, 2004; Khan et al., 2010). Women were also likely to seek alternatives due to being busy, forgetful, embarrassed, and on account of cost considerations (Parsa et al., 2008; Parsa et al., 2011). Malays and Indians are the two ethnic groups that are more prone to use traditional and herbal therapies in order to avoid surgery (Khan et al., 2011). This is supported by Khan et al, who demonstrated that Malays and Indians (7.8%) recommended the use of herbs while Chinese recommended use of soya and soya products as preventive measures for breast cancer (Khan et al., 2010). Most patients also took alternative therapies when they perceived that modern medicine would not cure the disease, when the prognosis was fatal, and when the disease caused major suffering (Norsa'adah et al., 2011). Chui et al did a more in-depth study of the use of CAM among breast cancer patients. It was revealed that the prevalence of CAM use ranges from 51.0 to 88.3%, depending on the inclusion or exclusion of prayer-for-health (a form of mind-body practice) (Chui et al., 2014). It was found that exclusion of prayer-for-health significantly reduces the prevalence of overall CAM use (Chui et al., 2014). Approximately 70.7% of the patients were users of multiple therapies, which will be discussed further later. CAM users were more likely to be Malays, have a higher level of education, higher household income, and have advanced cancer than non-CAM users (Chui et al., 2014). Samah and Ahmadian through their study also showed that the absence of spousal or social support leads to increased use of CAM, and that such patients were also less likely to have their chemotherapy on schedule than non-CAM users (Samah and Ahmadian, 2014). This leads to elevated rates of delayed or interrupted breast cancer treatment due to frequent visits to traditional healers (Chui et al., 2014). Another important point highlighted by Samah and Ahmadian was that only a small proportion of breast cancer survivors (25%) actually received information on CAM from healthcare professionals. This suggests that most women obtain information on CAM from non-

scientific resources (Samah and Ahmadian, 2014).

In contrast to the use of CAM, Rosmawati showed positive health-seeking behaviour since 77.3% of the women in this study were more inclined to seek modern practitioners for medical help rather than traditional healers (Rosmawati, 2010a). Similar results were also shown in the study conducted by Abdullah et al in 2011. Although this study shows positive help-seeking behaviour, generalization is limited as the study population was confined to health personnel (Abdullah et al., 2011).

Discussion

The findings revealed that there was generally a good awareness of breast cancer and its screening tests among women in Malaysia (Abdul-Hadi et al., 2010b; Khan et al., 2010; Akhtari-Zavare et al., 2011; Dahlui et al., 2011; Dahlui et al., 2012; Che et al., 2014; Yusof et al., 2014). However, the level of in-depth knowledge about breast cancer and about the performance of screening tests was relatively under-developed (Abdul-Hadi et al., 2010b; Khan et al., 2010; Akhtari-Zavare et al., 2011; Dahlui et al., 2011; Dahlui et al., 2012; Che et al., 2014; Yusof et al., 2014). This indicates that awareness and knowledge are two entirely different terms. Awareness implies just having heard about breast cancer, while knowledge involves an in-depth understanding about breast cancer and its important aspects. As mentioned in several articles, BSE is the most commonly adopted screening tool followed by CBE and mammograms (Chee et al., 2003; Parsa et al., 2008; Dunn et al., 2010; Dunn and Tan, 2011; Akhtari-Zavare et al., 2013). This is probably because BSE is a cheap, simple and non-invasive procedure, which involves little time and physical energy and which does not depend on professional help (Al-Naggar et al., 2011). This is especially important in Malaysia where there are limited or no resources for population-based mammography screening (Yip et al., 2006; World Health Organization, 2012). Overall, it was shown that Malaysian women had very superficial knowledge about breast cancer, particularly in respect to the risk factors associated with the disease (Dahlui et al., 2011; Subramanian et al., 2013; Che et al., 2014). It is, therefore extremely crucial to improve understanding of breast cancer risk factors in order to prevent breast cancer. Even so, knowledge alone may not be sufficient to prompt the correct action. In addition, it was shown that women in rural areas had lower awareness and knowledge compared to urban women (Farid et al., 2014). This may be due to limited access to health education and inability to receive BSE, CBE or mammogram due to transport or inaccessibility of tests (Farid et al., 2014). There is no certainty as to which ethnic group is more likely to perform regular BSE as the findings differ from study to study.

It was found that education level has a positive influence on both the awareness and practice of screening tests (Chee et al., 2003; Abdul-Hadi et al., 2010b; Kanaga et al., 2011; Dahlui et al., 2012; Norlaili et al., 2013; Che et al., 2014). After an educational intervention on BSE and breast awareness, monthly BSE practice increased by approximately four-fold (Loh and Chew, 2011). Females equipped with knowledge on the variation of symptoms

in breast cancer are enabled to interpret the symptoms correctly, thus assisting them in their decision-making as to whether to seek medical help (Norsa'adah et al., 2011). Parsa et al further emphasised the importance of education by pointing out that deficiencies in knowledge about breast cancer and its screening practices may cause women to perceive breast cancer as a less serious disease as well as not recognizing themselves as being in a high risk group (Parsa et al., 2011). In addition, Khan et al revealed that 94.1% of their respondents believed that BSE could prevent breast cancer (Khan et al., 2010). This is not true as BSE can be helpful only in early diagnosis and treatment. With respect to the contradicting results on knowledge scores found among Indian women in Abdul-Hadi et al (Abdul-Hadi et al., 2010b), Al-Dubai et al (Al-Dubai et al., 2011) and Baig et al (Baig et al., 2011), the results in Baig et al could be biased as nearly 50.0% of the Indian respondents were at college and university. However, this further augments the significant effect that education has in respect to knowledge about breast cancer.

A lot of studies discussed whether the level of education plays a role in influencing the level of breast cancer knowledge among Malaysian women, although there were conflicts of opinion as to whether there was a positive relationship or little to no relationship between breast cancer knowledge, awareness and level of education (Chee et al., 2003; Abdul-Hadi et al., 2010b; Dahlui et al., 2011; Kanaga et al., 2011; Khan et al., 2011; Dahlui et al., 2012; Norlaili et al., 2013; Che et al., 2014). As mentioned, generally, a high awareness of breast cancer and BSE was reported (Abdul-Hadi et al., 2010b; Khan et al., 2010; Akhtari-Zavare et al., 2011; Dahlui et al., 2011; Dahlui et al., 2012; Che et al., 2014; Yusof et al., 2014). Several articles, however, found that in-depth knowledge on breast cancer was poor and did not demonstrate a positive correlation with education (Abdul-Hadi et al., 2010a; Khan et al., 2011; Che et al., 2014). This could be attributed by the sources from which respondents obtained information on breast cancer and BSE, regardless of education level. In Che et al's study, for example, it was reported that female adolescents in Malaysia obtained most of their information from the media and the internet, at 25% and 22% respectively. Only a handful of participants (14%) received information from health professionals (Che et al., 2014). As such, the information obtained by those progressing further through the education system, such as university or college students, may not be sufficiently comprehensive to facilitate health-seeking behaviour. Those with a positive family history of breast cancer were also found to be non-compliant with their routine breast screening (Yip et al., 2008). This could be attributed to a low level of knowledge about the disease. One study, however, showed that significantly better knowledge levels were achieved within the experimental group after receiving education (Loh et al., 2009). Therefore, provision of proper education is essential so as to assist the public to be well-informed and confident about breast cancer.

There were generally more negative perceptions as compared to positive perceptions. Some showed prevailing fear of a diagnosis of breast cancer (Al-Naggar

et al., 2011; Al-Dubai et al., 2012; Subramanian et al., 2013) but suburban women in Terengganu (Rosmawati, 2010a), for example, showed an absence of fear. Different levels of confidence were also evident in the female population. They are shown to have high confidence in respect to their health since they presume that a healthy lifestyle is adequate to keep them free from diseases, thus eliminating the need to perform BSE (Parsa et al., 2011; Dahlui et al., 2012; Akhtari-Zavare et al., 2013). Young women and adolescents also do not consider themselves at risk of developing breast cancer since they consider that this is a disease that affects older women (Al-Naggar et al., 2011; Akhtari-Zavare et al., 2013). In addition, some perceive themselves to be at low risk of breast cancer because they do not have a family history of the disease (Parsa et al., 2011). These thoughts could be self-justifications, however, and the actual reason for not adopting BSE may be attributed to lack of knowledge.

Findings also revealed negative attitudes among women who are afraid of jeopardizing their role as a wife, mother and female (Hisham and Yip, 2004; Khan et al., 2010; Khan et al., 2011). Surgery was most commonly refused by Malay women (Khan et al., 2010; Khan et al., 2011). Cosmetic and cultural factors can contribute to this behaviour because Malay women felt that their role as a whole would be made vulnerable if they had breast cancer and surgery (Khan et al., 2010; Khan et al., 2011). They were worried that their husbands would leave them and their children and would love them less as a mother. As a result, they developed a strong sense of denial as their protective mechanism against such threats. They also feared that the surgery would disturb the tumour and cause it to grow and spread faster. All of these factors lead to treatment delay. It is essential, however, to note that these results may be biased as mastectomy was the only treatment option that the women considered (Khan et al., 2010; Khan et al., 2011). Nevertheless, this highlights the limited in-depth knowledge that they have regarding breast cancer. Negative information such as the side-effects of chemotherapy further escalates the fear and misconceptions about breast cancer treatment (Norsa'adah et al., 2011).

In addition, most articles discussed the issue of embarrassment, possibly due to the presence of male technicians or radiographers (Abdullah et al., 2011; Ghazali et al., 2013). It has been shown that Asian women are generally more private in their perception of their body and less receptive to revealing their private parts even to health personnel (Abdullah et al., 2011; Ghazali et al., 2013). In line with this, Ghazali et al revealed that more than half of the women preferred breast examination to be performed by female nurses in rather than male doctors as they felt more comfortable and less embarrassed (Ghazali et al., 2013). Furthermore, Samah and Ahmadian's findings showed a significant relationship between body image satisfaction and BSE behaviours among women. This is true especially among young women university students as they evaluate their overall appearance more often in order to attain body image satisfaction (Samah and Ahmadian, 2014). Nevertheless, more interventions need to be carried out to study and explore the relationship

between overall body image satisfaction and women's breast health behaviours among various populations. Several articles also pointed out other barriers such as women having lower coping skills to deal with abnormal results, higher anticipated pain during procedure, fear and anxiety of radiation, side-effects and x-rays (Abdullah et al., 2011; Al-Dubai et al., 2011; Kanaga et al., 2011; Parsa et al., 2011; Al-Dubai et al., 2012; Dahlui et al., 2012; Farid et al., 2014).

Although procedural cost was listed as one of the common barriers to seeking screening tests thus leading to late diagnosis, this may only be applicable to those who are poor and those living in rural areas (Subramanian et al., 2013). Several articles mentioned low income as one of main barriers to early diagnosis (Rosmawati, 2010b; Kanaga et al., 2011; Al-Naggar and Bobryshev, 2012; Beshir and Hanipah, 2012; Farid et al., 2014). This is particularly true since, as Farid et al highlighted, earning an income allows some female empowerment and thus leads to better health practices. It is also noted that most women with an income are able to afford their own transportation hence improving the accessibility to a health care centre. This is a particular issue in respect to the health barriers experienced by the Orang Asli, or indigenous people, since they suffer similar health barriers as other ethnic groups (Farid et al., 2014). It has also been shown that primary health care is still not available or easily accessible by Orang Asli or indigenous people. Although this group comprised of 10% of the total women sampled in this study, only 37% had actually done CBE (Farid et al., 2014).

Another main aspect that diverts women from seeking proper treatment is the availability of alternative and traditional medicine. This is highly significant particularly in a multicultural country like Malaysia. Complementary alternative treatment is more convenient, widely available and affordable compared to modern medicines (Norsa'adah et al., 2011). Opting for CAM and traditional methods leads to time wastage and consequently more advanced disease states. It will also cause women to be unaware of the dangers of alternative therapy and to develop a poorer understanding of the nature of breast cancer (Hisham and Yip, 2004). Norsa'adah et al discussed the rationale behind the practice of CAM (Norsa'adah et al., 2011). Most women wanted to have power over their treatment, had strong beliefs in the benefits in CAM and used it as their last hope. They also had previous bad experiences with modern medicine which caused them to doubt modern treatment (Norsa'adah et al., 2011; Chui et al., 2014; Samah and Ahmadian, 2014). In addition, they are more comfortable with using CAM since traditional healers or shamans are considered to be more patient-friendly (Norsa'adah et al., 2011). As mentioned by Chui et al, as CAM is a broad topic, CAM was further defined into three categories which are mind-body practices, natural products and traditional medicine. The most common category was natural products such as vitamins (82.8%), followed by mind-body practices (50.7%), and traditional medicine (35.7%)(Chui et al., 2014). Even so, mind-body practices were perceived to be the most helpful with prayer-for-health being the most popular

CAM, specifically among the Malays due to their daily praying routine (Chui et al., 2014; Samah and Ahmadian, 2014). Prayer may invoke a relaxation response, which in turn may positively affect health and overall well-being (Chui et al., 2014; Samah and Ahmadian, 2014). This approach may have real benefits since a study has showed that patients who are in advanced stages of breast cancer are heavy users of CAM (Chui et al., 2014). By praying, stress is greatly reduced and the immune system is strengthened to fight the disease (Chui et al., 2014). In order to avoid misconceptions, however, patients should receive professional information about the use of CAM as it is not proven to be a cure for cancer. In line with this, Samah and Ahmadian showed that the presence of social support may help in reducing the use of CAM (Samah and Ahmadian, 2014). Social support is a measure of the perception and reality of whether the women are cared for, have assistance from other people, and are part of a supportive social network. These supportive resources can be emotional, physical, informational, and companionship-related (Farid et al., 2014). As such, married women have the advantage of having household, economic and emotional support from their husbands. A theoretical model posits that marriage may be beneficial to health because spouses positively influence their partner's health behaviours (Ghazali et al., 2013).

Recommendations

The main suggestion in respect to the female population in Malaysia would be to increase knowledge of breast cancer as this will positively influence the take-up of screening tests, avoid misconceptions and therefore improve health-seeking behaviour (Khan et al., 2010; Foo et al., 2015). This can be done by carrying out health promotion campaigns in public places and health facilities, especially in community pharmacies. Pharmacists, who are easily accessible and recognized as experts in matters of health, could offer public health interventions more conveniently than other health care providers (Beshir and Hanipah, 2012). Health education should emphasize the importance of early detection and include information addressing the various concerns related to medical interventions, such as side-effects and cost (Abdullah et al., 2011). Pre-mammography counselling should also be provided in order to increase the level of confidence, and to reduce fear and anxiety. In addition, the public should be provided with a list of health care locations that offer screening test facilities.

Breast cancer education and screening promotion should also be extended to the spouse and family members, for example by including spouses during BSE demonstrations and providing health education materials to men (Dahlui et al., 2013). Those with a family history of breast cancer should be educated on the importance of regular surveillance of breast cancer which includes regular expert clinical examination (Yip et al., 2008). On top of that, health care professionals in Malaysia should be well-equipped with evidence-based information regarding CAM and multicultural practices so that they are able to counsel and advise patients properly. The public should

be informed that these alternatives are not a replacement for proper cancer treatment. The teamwork among health care professionals such as doctors, pharmacists, nurses, and radiology personnel is crucial in order to ensure the provision of evidence-based and professional advice. Responsibility is also placed on magazines, print and electronic media to disseminate accurate information to the public so that they are able to make sound judgments in respect to breast cancer.

Conclusion

In conclusion, women in Malaysia generally have good awareness about breast cancer and on screening with BSE. There are serious deficits in in-depth knowledge, however, which creates misconceptions and delays health-seeking behaviour. This results in increased numbers being at an advanced stage of the disease when treatment is sought. The challenge in Malaysia is to be able to provide a comprehensive service in the diagnosis and treatment of breast cancer, and this requires good teamwork among trained health professionals. This systematic review also highlights the importance of breast cancer education, which is scarce.

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References

Abdul-Hadi M, Hassali MA, Shafie AA, et al (2010a). Evaluation of breast cancer awareness among female university students in Malaysia. *Pharm Pract*, **8**, 29-34.

Abdul-Hadi M, Hassali MA, Shafie AA, et al (2010b). Knowledge and perception of breast cancer among women of various ethnic groups in the state of Penang: a cross-sectional survey. *Med Princ Pract*, **19**, 61-7.

Abdullah NN, Aziz NA, Rampal S, et al (2011). Mammography screening uptake among hospital personnel in Kuala Lumpur tertiary hospital. *Asian Pac J Cancer Prev*, **12**, 2643-7.

Akhtari-Zavare M, Juni MH, Manaf RA, et al (2011). Knowledge on breast cancer and practice of breast self examination among selected female university students in Malaysia. *Med Health Sci J*, **7**, 49-56.

Akhtari-Zavare M, Juni MH, Said SM, et al (2013). Beliefs and behavior of Malaysia undergraduate female students in a public university toward breast self-examination practice. *Asian Pac J Cancer Prev*, **14**, 57-61.

Al-Dubai SA, Qureshi AM, Saif-Ali R, et al (2011). Awareness and knowledge of breast cancer and mammography among a group of Malaysian women in Shah Alam. *Asian Pac J Cancer Prev*, **12**, 2531-8.

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.

Al-Naggar RA, Al-Naggar DH, Bobryshev YV, et al (2011). Practice and barriers toward breast self-examination among young Malaysian women. *Asian Pac J Cancer Prev*, **12**, 1173-8.

Al-Naggar RA, Bobryshev YV (2012). Practice and barriers of mammography among Malaysian women in the general population. *Asian Pac J Cancer Prev*, **13**, 3595-600.

Al-Naggar RA, Bobryshev YV, Al-Jashamy K (2012). Practice of breast self-examination among women in Malaysia. *Asian Pac J Cancer Prev*, **13**, 3829-33.

Baig MR, Subramaniam V, Chandrasegar AA, et al (2011). A population based survey on knowledge and awareness of breast cancer in the suburban females of Sungai Petani, Kedah, Malaysia. *Int J Collab Res Intern Med Pub Health*, **3**, 671-9.

Beshir SA, Hanipah MA (2012). Knowledge, perception, practice and barriers of breast cancer health promotion activities among community pharmacists in two Districts of Selangor state, Malaysia. *Asian Pac J Cancer Prev*, **13**, 4427-30.

Bray F, Ren JS, Masuyer E, et al (2013). Estimates of global cancer prevalence for 27 sites in the adult population in 2008. *Int J Cancer*, **132**, 1133-45.

Che CC, Coomarasamy JD, Suppayah B (2014). Perception of breast health amongst Malaysian female adolescents. *Asian Pac J Cancer Prev*, **15**, 7175-80.

Chee HL, Rashidah S, Shamsuddin K, et al (2003). Knowledge and practice of breast self examination and Pap smear screening among a group of electronics women workers. *Med J Malaysia*, **58**, 320-9.

Chui PL, Abdullah KL, Wong LP, et al (2014). Prayer-for-health and complementary alternative medicine use among Malaysian breast cancer patients during chemotherapy. *BMC Complement Altern Med*, **14**, 425.

Dahlui M, Gan DE, Taib NA, et al (2013). Breast screening and health issues among rural females in Malaysia: how much do they know and practice? *Prev Med*, **57**, 18-20.

Dahlui M, Gan DE, Taib NA, et al (2012). Predictors of breast cancer screening uptake: a pre intervention community survey in Malaysia. *Asian Pac J Cancer Prev*, **13**, 3443-9.

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.

Dunn RA, Tan A, Samad I (2010). Does performance of breast self-exams increase the probability of using mammography: evidence from Malaysia. *Asian Pac J Cancer Prev*, **11**, 417-21.

Dunn RA, Tan AK (2011). Utilization of breast cancer screening methods in a developing nation: results from a nationally representative sample of Malaysian households. *Breast J*, **17**, 399-402.

Farid NDN, Aziz NA, Al-Sadat N, et al (2014). Clinical breast examination as the recommended breast cancer screening modality in a rural community in Malaysia; what are the factors that could enhance its uptake? *PLoS ONE*, **9**.

Ferlay J, Soerjomataram I, Ervik M, et al (2013). GLOBOCAN 2012: Cancer incidence and mortality worldwide [Online]. Available: <http://globocan.iarc.fr> [Accessed Dec 30 2014].

Foo QY, Murugiah MK, Khan AH, et al (2015). Meta-synthesis exploring barriers to health seeking behaviour among Malaysian breast cancer patients. *Asian Pac J Cancer Prev*, **16**, 145-52.

Ghazali SM, Othman Z, Cheong KC, et al (2013). Non-practice of breast self examination and marital status are associated

- with delayed presentation with breast cancer. *Asian Pac J Cancer Prev*, **14**, 1141-5.
- Hisham AN, Yip CH (2004). Overview of breast cancer in Malaysian women: a problem with late diagnosis. *Asian J Surg*, **27**, 130-3.
- 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.
- Khan TM, Afzal HA, Khan A, et al (2010). A pilot study evaluating health literacy towards breast cancer among multiethnic students. *J Clin Diagn Res*, **4**, 2504-11.
- Khan TM, Anwar M, Gillani W (2011). Knowledge towards breast cancer among Malaysian university students. *Breast J*, **17**, 553-4.
- Leong BD, Chuah JA, Kumar VM, et al (2007). Breast cancer in Sabah, Malaysia: a two year prospective study. *Asian Pac J Cancer Prev*, **8**, 525-9.
- Loh S, Packer T, Yip CH, et al (2009). Targeting health disparity in breast cancer: Insights into women's knowledge of their cancer profile in Malaysia. *Asian Pac J Cancer Prev*, **10**, 631-6.
- Loh SY, Chew SL (2011). Awareness and practice of breast self examination among malaysian women with breast cancer. *Asian Pac J Cancer Prev*, **12**, 199-202.
- Norlaili AA, Fatimah MA, Daliana NFN, et al (2013). Breast cancer awareness of rural women in Malaysia: is it the same as in the cities? *Asian Pac J Cancer Prev*, **14**, 7161-4.
- Norsa'adah B, Rampal KG, Rahmah MA, et al (2011). Diagnosis delay of breast cancer and its associated factors in Malaysian women. *BMC Cancer*, **11**, 141.
- Parsa P, Kandiah M (2010). Predictors of adherence to clinical breast examination and mammography screening among Malaysian women. *Asian Pac J Cancer Prev*, **11**, 681-8.
- Parsa P, Kandiah M, Parsa N (2011). Factors associated with breast self-examination among Malaysian women teachers. *East Mediterr Health J*, **17**, 509-16.
- Parsa P, Kandiah M, Zulkefli NAM, et al (2008). Knowledge and behavior regarding breast cancer screening among female teachers in Selangor, Malaysia. *Asian Pac J Cancer Prev*, **9**, 221-8.
- Rosmawati NHN (2010a). Knowledge, attitude and practice of breast self-examination among women in a suburban area in Terengganu, Malaysia. *Asian Pac J Cancer Prev*, **11**, 1503-8.
- Rosmawati NHN (2010b). The usage and knowledge of mammogram among women in sub-urban area in Terengganu, Malaysia. *Asian Pac J Cancer Prev*, **11**, 767-71.
- Samah AA, Ahmadian M (2014). Relationship between body image and breast self-examination intentions and behaviors among female university students in Malaysia. *Asian Pac J Cancer Prev*, **15**, 9499-503.
- Subramanian P, Oranye NO, Masri AM, et al (2013). Breast cancer knowledge and screening behaviour among women with a positive family history: a cross sectional study. *Asian Pac J Cancer Prev*, **14**, 6783-90.
- World Health Organization (2012). Population fact sheets [Online]. Available: http://globocan.iarc.fr/Pages/fact_sheets_population.aspx [Accessed Dec 30 2014].
- World Health Organization (2014). Breast cancer: prevention and control [Online]. Available: <http://www.who.int/cancer/detection/breastcancer/en/> [Accessed Dec 30 2014].
- Yip CH, Mohd Taib NA, Lau PC (2008). Does a positive family history influence the presentation of breast cancer? *Asian Pac J Cancer Prev*, **9**, 63-5.
- Yip CH, Taib NA, Mohamed I (2006). Epidemiology of breast cancer in Malaysia. *Asian Pac J Cancer Prev*, **7**, 369-74.
- Yusof A, Chia YC, Hasni YM (2014). Awareness and prevalence of mammography screening and its predictors - A cross sectional study in a primary care clinic in Malaysia. *Asian Pac J Cancer Prev*, **15**, 8095-9.