MINI-REVIEW

Barriers for Breast Cancer Screening Among Asian Women: A Mini Literature Review

Parisa Parsa[1]*, Mirnalini Kandiah[2], H Abdul Rahman[3], NA Mohd Zulkefli[3]

Abstract

Breast cancer is the most commonly diagnosed cancer among Asian women. Breast cancer is detected in advanced stages and among younger age group women in Asia. The delay in presentation is attributed mainly to the social-cultural perception of the disease, poverty, and the strong influence of traditional medicine. Many of Asian women are not aware of the importance of regular screening. Cultural attitudes toward breast cancer screening tests, modesty, lack of encouragement by family members and physicians are the major inhibitors to women's participation in breast cancer screening. Health education using media and community health programs to create awareness of the advantages of earlier presentation and diagnosis of breast cancer in Asian women can motivate participation in breast cancer screening programs.

Key Words: Asia - barriers - breast cancer screening - motivators

Asian Pacific J Cancer Prev, **7**, 509-514

Introduction

Breast cancer is the most common cancer in women in most parts of the world, but there is a marked geographic variation in the incidence in different countries. The incidence is highest in Northern Europe and North America, intermediate in Mediterranean countries and South America, and lowest in Asia and Africa (Ferlay et al., 2001). Globally the total number of new cases of breast cancer currently exceeds 1 million, and this figure is expected to reach 1.5 million by the end of decade because of major increases in the number of cases in countries with limited resources (Parkin, 2005). By 2010, total annual number of cases in countries with limited resources will exceed the number in developed countries (Parkin, 2005). In Asian countries breast cancer is the most commonly diagnosed cancer among women. According to the National Cancer Registries in different Asian countries, the crude incidence rate of breast cancer varied from 21.3 per 100,000 population in Jordan, 21.4 in Iran, 24.1 in Turkey, 34.86 in Malaysia , 48 in Japan to 54 per 100,000 population in Singapore (Ferlay, 2001; Petro-Nustus, 2002; Harirchi, 2004; Secginli, 2006; Hisham, 2004).

Breast cancer occurs in the younger age group of Asian women, 40 to 49 years-old compared to the West, where the peak prevalence is seen between 50 to 59 years. Studies done in Singapore (Yip and Ng, 1996), Malaysia (Hisham and Yip, 2004), Iran (Harirchi et al., 2004), Thailand (Thongsuksal, 2000), Pakistan (Usmani et al., 1996) and Arab women in Palestine (Nissan et al., 2004), reported more than half of new cases of breast cancer were diagnosed in women below the age of 50 years and in advanced stages III, IV. The tumor mass at presentation is much larger, with either locally or metastatic as compared to reported in Western studies, where almost 75% of cases present in the early stages. The delay in presentation is attributed mainly to the social-cultural perception of the disease and screening tests, poverty, and the strong influence of Eastern medicine (Hisham and Yip, 2004; Rashidi and Rajaram, 2000).

Breast cancer screening practices are low among Asian women. Only 3.8% in Malaysia (Hisham and Yip, 2004), 6% in Iran (Jarvandi et al., 2002), 7% in Jordan (Petro-Nustus, 2002), 12% in South Asia (Choudhry et al, 1998), and 16% in China (Fung et al., 1998) women reported performing BSE regularly, compared to Sweden where 70% of women aged 25-80 years examined their breasts regularly (Persson et al, 1997). Studies in South Asia showed that only 31.1% to 49% of women over than 40 years had undergone at least one clinical breast examination during their lifetime (Choudhry et al, 1998; Narimah, 1997). Mammography was carried out only in 3.8% of Malaysian women; and there was a significant difference in screening rates between urban and rural areas (50.6% versus 42.3% respectively, $P<0.05$) (Narimah, 1997). In another study in

[1]*Department of Maternal and Child Health, Hamedan University of Medicine and Health Sciences, Iran,* [2]*Department of Nutrition and Dieticians, and* [3]*Department of Community Health, Faculty of Medicine and Health Sciences, University Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia. *For Correspondence: Tel: +60176573574 Email: PParsa2003@yahoo.com*

the Asian part of Turkey (Izmir) among 659 Muslim women attending health centers, only 17% did BSE regularly; and among women over the age of 40 years, 25% reported at least one mammography (Secginli et al., 2006). Cultural attitudes toward breast cancer screening test (BCST) were reported to be one of the reasons for low participation rate among Asian women (Im et al., 2002; Hisham and Yip, 2003; Rashidi et al., 2000; Jirowong, 2003). In some studies, modesty issues were reported to be an inhibitor that influenced women's participation in BCST (Im et al., 2002). Other researchers reported that lack of encouragement by family members and physicians as major inhibitors to participate of women in BCST (Han et al., 2000).

Considering that breast cancer screening rates are very much lower in Asian women as compared than western counterparts as well as variation in screening rates among Asian countries, we carried out a literature search to identify factors that are barriers to breast cancer screening among Asian women.

Methodology

Four databases were used for the literature search which were Medline, Pub Med, Science Direct, and Black Well Synergy. The search terms were "barriers" and "motivators" were used and combined with "breast cancer", "breast cancer screening" and "Asian women". Over 50 articles published between 1996-2006 were reviewed which included systematic reviews, quasi experimental reports, surveys and qualitative studies. The inclusion criteria were barriers and motivators for breast screening, breast self examination, clinical breast examination, and mammography practices.

The barriers were categorized into three main areas: knowledge, psychosocial, and socio demographic factors.

Knowledge Factors

Many Asian women misunderstand the concept of preventive behaviors (Chong et al., 2002; Goel et al., 2003). They may not know that they should receive a periodic breast cancer screening (BCS) and may assume that if they once had a test, a repeat screening is unnecessary (Im et al., 2004). Several studies examining factors affecting screening practices among women of Asian descent have demonstrated that the lower screening rate is associated with their knowledge and perceptions of preventive health measures (Chua, 2005; Juon et al., 2004; Petro- Nustus, 2002; Nissan, 2004; Benner et al., 2001; Kasule, 2004). Studies in Korea (Joun et al., 2004) and Turkey (Secginli et al., 2006) showed knowledge of breast cancer screening guidelines was a major predictor of regular screening women. Women who had knowledge of mammography guidelines were 10 times more likely of having regular mammograms (Secginli et al., 2006). The findings support the positive effects of knowledge of mammography guidelines on getting regular mammograms.

A study in Hong Kong (Chua, et al. 2005) reported that 42% (n = 424) of the surveyed population had heard of mammography screening. Education level had no impact on the awareness. Full-time housewives were significantly more likely to have heard of mammographic screening compared to non-housewives (49% versus 37%; p = 0.0001). Among these women, the majority (82%) acknowledged that mammographic screening could detect early breast cancer and reduce mortality. This finding suggests that perhaps increased media exposure, for example, women's lifestyle programs on television or women's magazines, may have accounted for this (Chua et al. 2005). Also, findings of other studies (Petro-Nustas and Mikhail, 2002, Jarvandi et al., 2002; Secginli et al., 2006; Juon et al., 2004), suggest that the media is an important source of breast cancer information for women and could improve women's knowledge about breast cancer and breast cancer screening. These findings are consistent with previous findings suggesting that knowledge of BSE and mammography are important facilitators of BSE and mammography use (Jarvandi et al., 2002; Secginli et al., 2006; Han et al., 2000; Miller and Champion, 1996).

Psychosocial Factors

There are several psychococial models which attempt to explain health behaviors. The social support theory describes cancer and screening as stressors that could be buffered by being part of a supportive network (Wagle et al., 1997). The cognitive transactional model of stress and coping describes screening as a way to cope with anxiety associated with being at risk (Barron et al., 1997). Screening involves a dynamic process of moving through stages of contemplation and action following the propositions of the transtheoretical model (Pearlman et al., 1996). The health belief model (HBM) appeared most frequently in literature explaining breast cancer screening. The model suggests that changes in preventive health behavior are originally based on six factors: (a) susceptibility: perceived personal vulnerability to or subjective risk of a health condition, (b) seriousness: perceived personal harm of the condition, (c) benefits: perceived positive attributes of an action, (d) barriers: perceived negative aspects related to an action (e) health motivation refers to beliefs and behaviors related to the state of general concern about health and (f) confidence is defined as the belief that one can successfully execute a behavior that will then lead to a desirable outcome (Champion,1999).

According to the HBM, women who believe that they are susceptible to breast cancer and that breast cancer is a serious condition are more likely to perform BSE and have mammography. Similarly, women who perceive more benefits and fewer barriers from BSE and mammography are more likely to use breast cancer screening behaviors. Moreover, women who are more confident in their ability to detect abnormal lumps and more motivated to promote their health are more likely to perform BSE and have mammography (Champion, 1999).

According to studies performed in the US (Champion,

1999), Turkey (Secginli et al., 2006), and Korea (Han et al., 2000) concepts of susceptibility, seriousness, benefits, confidence, and health motivation are positively associated with screening behaviors, while perceived barriers are negatively associated with them .

Perceptions of Breast Cancer and Breast Cancer Screening

Screening is linked to perceptions of risk, benefit and barriers through a reasoning process that includes personal and social influences and attitudes. One possible reason for Asian women's low participation rate in BCST would be that the women did not perceive the importance of BCST. Results of some studies carried out in Korea (Lee et al., 2000; Im et al., 2004), Singapore (Straughn and Seow, 2000; Chon et al, 2002), Malaysia (Hisham and Yip, 2003), Iran (Jarvandi et al., 2002) showed that the women did not perceive the importance of early detection of breast cancer, and the women did not have adequate information on breast cancer and BCST. As the findings indicated, the women directly connected cancer to death, and the women were fearful about cancer and death (Juon et al., 2004; Nissan et al., 2004; Benner et al., 2002).

A qualitative study by Im et al. (2004) in Korea showed that women did not perceive the need for BCST if did not have any symptoms, because they thought their risk of breast cancer was low, or because they did not have any family history of breast cancer. ''No need for a breast exam'' meant that the women would not go for a breast exam until they had recognizable symptoms of breast cancer. What they did not realize was that by the time they find recognizable symptoms, their disease would no longer be at an early stage when treatment may be more effective. An interesting finding was that some of the women strongly believed that they would not have breast cancer because they have breastfed their children. Probably, some previous education programs delivered by the media or community health nurses had provided the women with this information. However, the information was not adequate, or misinterpreted due to inadequate understanding, and the women even did not know about other risk factors or procedures for BCST.

Socio -Cultural Influences

The social and cultural perceptions of breast cancer are the most important contributor to the advanced stage of presentation in Asian women such as, Malaysian (Hisham and Yip, 2004), Iraninan (Rashidi and Rajaram, 2000; Harirchi et al., 2004), Chinese (Chua et al., 2005), Singaporean (Straughan et al., 2000), Korean (Im et al., 2004) and Arabic women (Benner et al., 2002; Nissan et al., 2004). Women in these developing countries continue to seek alternative and Eastern medicine in a desperate effort to combat the disease. Sadly, much time is lost at the critical early stage of disease, and most patients succumb to breast cancer with florid presentation and advanced staging. Fear, doubt, and denial may be also accountable for delays in seeking medical care. Thus it would seem that the social-cultural perceptions would be the main obstacle to the success of any breast-screening program initiated in developing countries. Although it would seem that this perception might occur predominantly among less-educated patients, surprisingly this phenomenon affects educated patients as well. Poverty may also be a factor in the delay in presentation among breast cancer patients. Because the delay in presentation until an advanced stage of breast cancer is multi-factorial, it is necessary to educate and create awareness that encourages health seeking behavior.

During the 2002 Global Summit, variety of barriers to awareness based on evidence from previous studies in limited resource countries were identified: fatalism, inability to act without husband's permission, fear of casting stigma on one's daughters, fear of being ostracized, fear of contagion, reticence, language barriers, preference for traditional healers (Smith, et al. 2006). These barriers fall into two general groups: those that can be addressed with education and those that need to be addressed with tailored approaches that take into account culture, religion, and other factors. In both instances, tailored approaches will need to be directed toward women, health care workers, and others in the community.

Asian culture tends to make women's bodily experience invisible and inaudible. Women have always occupied a lower position, and their lower position has subordinated their own needs, including health care needs to the needs of other family members (Im, 2004; Benner, 2002; Nissian, 2004, Hisham, 2004). Therefore, women's health problems tend to be regarded as trivial. Im's study (2004) showed attitudes toward women's health problems might be a strong influence on the Korean women's participation in BCST. ''No need for a breast exam'' certainly reflects this type of attitude toward women's health problems.

Embracement of Clinical Breast Examination

In Asian traditional culture, women's bodily experiences are taboo. Even among women themselves, body experiences are rarely discussed. Mothers in the menopausal transition rarely talk about their experiences to their daughters, and teenage girls frequently learn about menstruation at menarche (Im et al., 2004). Considering their conservative and traditional attitudes toward bodily experiences and exposure, it is understandable why many Asian women are unwilling to show their breasts to others, including to health care providers (Smith et al., 2006; Im et al., 2004; Juon et al., 2004). Furthermore, when they find a lump in their breasts, they might be hesitant to visit a clinic for further check-up. Rather, they might delay the check-up until the lump becomes serious in terms of pain, hardness, or discharge while hoping the lump would disappear soon (Petro-Nustas and Mikhail, 2002; Jarvandi et al., 2002; Im et al., 2004; Juon et al., 2004; Hisham and Yip, 2003).

Unpleasant previous experiences, further stresses the modesty issues of the Korean, Chinese, and Iranian women (Im et al., 2004; Juon et al., 2004; Abdulah, 2001). Because male physicians did the clinical exams and/or women needed to expose their breasts, they felt ashamed and humiliated,

and they as a result refrained from participating in breast exams. "Painful" and "uncomfortable" experiences doing mammography may be made more pleasant by first having the radiographers to explain to patients what to expect before carrying out the procedure and as gently as possible .

Fear of Breast Cancer Screening Results

Yarbrough and Braden (2001) carried out a review of 16 published descriptive studies employing the health belief model as a guide for explaining or predicting breast cancer screening behaviors. The study highlighted barriers to screening behavior as including fear of results, fear of treatment and fear of the test itself. These findings are consistent with the results of other researchers in Iran (Jarvandi et al., 2002), Malaysia (Hisham and Yip, 2003), United Arab Emirates (Bener et al., 2002) and Jordan (Petro-Nustas and Mikhail, 2002). These fears and worries may be due to erroneous perceptions that the women held. Teaching the realistic risks of developing BC and the importance of BC screening can reduce these fears and would enable women to overcome barriers due to their wrongly held beliefs.

Socio- demographic Factors

According to Madan et al (2000), factors such as high education, married status, employment and young age but not ethnicity were predictors of performance of BSE. Other studies also concluded that age, education, knowledge, attitude, social influence, preventive health orientation, ease in establishing a BSE routine were all associated with breast cancer screening (Abdulah and Leung, 2001; Cetingos et al., 2002; Petro-Nustas and Mikhail, 2002; Katapodi et al., 2004; Juon et al., 2004; Wu et al., 2006). However, Madan et al. (2000) and Abdulah and Leung (2001) studies have limitations such as self reported screening test by women which may lead to an overestimation of BCS, and other socioeconomic factors such as income level, women guarantor status, and psychological issues with BCS were not explored in these studies. Several studies have also suggested that income and education level may be important variables associated with mammography use (Straughan and Seow, 2000; Barr et al., 2001; Juon et al., 2002; Finney et al., 2003).

Social Support and Network

A lack of social support and intrinsic cultural beliefs were postulated to be a negative influence on the choice of screening (Im et al., 2004; Chua et al., 2005). Women who stated that time and cost were concerns for regular screening were more likely to be married and/or have children. If the social support network, including employers, colleagues in the workplace, family, and friends, can be improved through appropriate health education campaign, then it is likely that a more positive attitude toward preventive health care will provided (Straughan and Seow, 2000; Abdullah and Leung, 2001; Juon et al., 2004).

Forgetfulness and Lack of Time

Forgetfulness and lack of time are reported as two of the most common barriers for BC screening among women in Asia (Jarvandi et al., 2002; Bener et al., 2002; Petro-Nustas and Mikhail, 2002; Hisham and Yip, 2003). These results could be due to the multiple responsibilities held by women at the workplace and at home, and restricting of time that urge the working women to postpone their own affaires for the sake of family members

Having Health Insurance

Women with health insurance were more likely than other women to undergo mammography (Juon et al., 2004; Secginli, 2006). Recommendations and guidelines for mammography as a public health practice may vary between countries. As reported in some studies (Anderson et al., 2003; 2004; Wu et al., 2006), low rates of participating Asian women in BCS may be partially due to the cost effects of medical services.

Having Regular Health Care

Several studies suggest that having a gynecologist as a regular physician and physician referral are important predictors in BCST (Chon et al., 2002; Jarvandi et al., 2002; Juon et al., 2004; Im et al., 2004; Secginli et al., 2006). Also, as would be expected, the rate of referral by a physician was substantially higher among women who reported having mammography. In some Asian countries such as Iran, Turkey, and Korea insurance for having mammography requires a doctor's referred to ensure payments (Jarvandi et al., 2002; Juon et al., 2004; Secginli et al., 2006). While several studies report that mammography screening of women aged 50–69 years reduces mortality from breast cancer, they also support the value of mammography for women 40–49 years of age (Anderson et al., 2003; Secginli et al., 2006). Therefore, it is important to encourage women to consult with their doctors for more information.

The findings of studies in these countries demonstrated that most of the women, aged 40 years and older, did not receive a mammography referral by their physicians. The low rate of mammography use may be due in part to lack of physicians' referral and regular visits with a gynecologist Efforts to educate health care providers, particularly physicians, should emphasize the importance of the mammography referral and the importance of being enthusiastic when making the referral. In addition, periodical checkups such as regular gynecologist visits are also important. Future research is recommended to explore the role of physician referral in the take up of mammography.

Conclusions

The findings provide evidence supporting the importance of knowledge, perception and socio-demographic barriers in women's decision on uptake of breast screening. As hypothesized in the health belief model, women with higher perceived barriers were less likely to undergo breast

screening. To alleviate barriers, one suggestion is to bring the screening sites closer to the target population. This would encourage who are pressed for time or who are less mobile to adopt preventive health screening as part of their normal routine. It is more difficult to overcome psychological barriers. Perceptions of pain and notions of modesty are both very subjective. To overcome anxieties arising from anticipated pain, one way is to increase women's awareness of the importance of early detection. The perceived efficacy of early detection index was positively correlated with attendance at the breast screening exercise (Straughan and Seow, 2000). Women who were aware of the merits of early cancer detection were more likely to take proactive control of their susceptibility to breast cancer. On the issue of modesty, generally, Asian women are more private in their perceptions of their body, and are less receptive to revealing private parts of their body, even to health care providers (Bottor et al., 1998).

Public education and mass-target campaigns can increase the awareness in the target population. However, these are often expensive and unless they are specifically targeted at relevant segments of the population, they are not very effective. Another more effective method would be to invoke the power of informal social support in the promotion of health screening behavior (Seow et al., 1998).

Women who perceived that they were important to their family members were more likely to accept the free mammogram (Straughan and Seow, 2000). Social embedded ness can affect acceptance of screening in two ways. First, family members can serve as conveyers of messages. Women are more likely to adhere to advice given by trusted family members. Second, because of their perceived importance in the family, women who are embedded are more likely to want to sustain their health status so as to enable them to continue their role in the family. While case and concern in the family involves the desire to sustain one's healthy status, but being important to one's close friends does not have the same effects (Abdulah and Leung, 2001; Straughan and Seow, 2000; Juon et al., 2004).

Straughan and Seow, (2000) found a negative relationship between physician's advice and attendance at the National Breast Screening Exercise. Women who had been advised by a physician to go for a mammogram are less likely to accept the free invitation. On the contrary, several studies suggest that having a gynecologist as a regular physician and physician referral are important predictors in BCST (Chon et al., 2002; Jarvandi et al., 2002; Im et al., 2004; Juon et al., 2004; Secginli et al., 2006). Perhaps in Straughans' study some women who were very likely to be on a regular screening routine, did not need a free mammogram. Nonetheless, this negative correlation should be further analyzed in future studies.

It is believed that the strong negative social and cultural perception of breast cancer in developing countries could to be the main reason for the delay in presentation. This is made worse by poverty and the lack of health care services across wide geographical areas. Nonetheless, it appears that improved communication, health education, and creating awareness of the advantages of health-seeking behavior represent a step towards earlier presentation and diagnosis of breast cancer in developing countries. In order to promote Asian women's participation in BCST the following are suggested:

Firstly, Asian women's participation in BCST need to be promoted. Health care providers should provide adequate information on BCST to women. With more accurate, and complete information, women might be motivated to participate in BCST rather than just hoping that they would not have breast cancer because they do not have symptoms, had breastfed, or do not have a family history.

Secondly, health care providers should consider a woman's feelings about BCST including clinical breast exams and mammography. As the findings indicate, the women felt uncomfortable during BCST because the physician was a male and because the women were not informed about the procedures for BCST. When a woman comes for BCST, health care providers should consider the female's attitude on toward a male physician and make arrangements to minimize their negative feeling. Procedures for BCST should be adequately explained to the women, and the women need to be provided an opportunity for questions and answers. That would reduce their anxiety about BCST.

Finally, governments and health care organization could raise the consciousness about the impact of patriarchal influence on women's health/illness experience among health care providers as well as among women through the mass media, brochures, posters. Consciousness-raising may make health care providers to recognize cultural differences in women's attitudes toward BCST. Increase cultural competence allow for effective communication and promote women's participation in BCST. In this way Asian women may be empowered and motivated to actively participate in BCST.

References

Abdulah A, Leung T (2000). Factors associated with the use of breast and cervical cancer screening services among Chinese women in Hong Kong. *Public Health*, **115**, 212-7.

Anderson BO, Braun S, Carlson RW, et al (2003). Overview of breast health care guidelines for countries with limited resources. *Breast J*, **9 (suppl 2)**, 42–50.

Barron CR, Houfek JF, Foxall M J (1997). Coping style, health beliefs, and breast self-examination. *Issues Mental Health Nursing*, **18**, 331-350.

Bottor J L, Johnson J L, Bhagat R, Grewal S (1998). Beliefs related to breast health practices: the perceptions of South Asian women living in Canada. *Soc Sci Med*, **47**, 2075-85.

Berner A, Alwash R, Miller CJ, et al (2001). Knowledge, attitudes and practices related to breast cancer screening: a survey of Arabic women. *J Cancer Educ*, **16**, 215-20.

Champion VL, Scott CR (1997). Reliability and validity of breast cancer screening belief scales in African American women. *Nursing Res*, **46**, 331–7.

Cetingos R, Kentli S, Uruk O, et al (2002). Turkish people's

knowledge of cancer and attitudes toward prevention and treatment. *J Cancer Educ*, **17**, 55-8.
Chong PN, Krishnan M, Hong CY, Swah TS (2002). Knowledge and practice of breast cancer screening amongst public health nurses in Singapore. *Singapore Med J*, **43**, 509-16.
Choudhry UK, Srivastava R, Fitch MI (1998). Breast cancer detection practices of South Asia women: knowledge, beliefs, and beliefs. *Oncol Nurs Forum*, **25**, 1693-701.
Chua M, Franzcr M, Mok T, et al (2005). Knowledge, perceptions, and attitudes of Hong Kong Chinese women on screening mammography and early breast cancer management. *Breast J*, **11**, 52–6.
Ferlay J, Bray F, Pisani P (2001). Globocan 2000: Cancer Incidence, Mortality and Prevalence Worldwide, Lyon: IARC Press, version 1.0 IARC Cancer Base. No 5.
Finney RL, Iannotti R (2003). Health beliefs, salience of breast cancer family history, and involvement with breast cancer issues: adherence to annual mammography screening recommendations. *Cancer Detect Prevent*, **27**, 353-59.
Fung SY (1998). Factors associated with breast self-examination behavior among Chinese women in Hong Kong. *Patient Educ Couns*, **33**, 233-43.
Goel M, Wee C, McCarthy E (2003). Racial and ethnic disparities in cancer screening. *JGIM*, **18**, 1028-35.
Han Y, Williams RD, Harrison RA (2000). Breast cancer screening knowledge, attitudes, and practices among Korean American women. *Oncol Nursing Forum*, **27**, 1585-91.
Harirchi I, Karbakhsh M, Kashefi A, Momtahen AJ (2004). Breast cancer in Iran: results of multi-center study. *Asian Pacific J Cancer Prev*, **5**, 24-27.
Hisham AN, Yip CH (2003). Spectrum of breast cancer in Malaysian women: Overview. *World J Surg*, **27**, 921-3.
Hisham AN, Yip CH (2004). Overview of breast cancer in Malaysian women: a problem with late diagnosis. Asian Journal Surgery, 27, 130-133.
Im EO, Park YS, Lee EO, et al (2004). Korean women's attitudes toward breast cancer screening tests. *Int J Nursing Studies*, **41**, 583-9.
Jarvandi S, Montazeri A, Harirchi I , Kazemnejad A (2002). Beliefs and behaviors of Iranian teachers toward early detection of breast cancer and breast self-examination. *Public Health*, **116**, 245-9.
Jirojwong S (2003). Health beliefs, perceived self-efficacy, and breast self-examination among Thai migrants in Brisbane. *J Adv Nursing*, **41**, 241-9.
Juon HS, Kim M, Shankar S, et al (2004). Predictors of adherence to screening mammography among Korean American women. *Prev Med*, **39**, 474-81.
Kasule OH (2004). Knowledge, attitude and practices of cancer prevention: a perspective of multi-national university community. *Electronic International Medicine Journal*, **1**, No. 2. www.e-imj.com
Katapodi MC, Lee KA, Facione NC, Dodd MJ (2004). Predictors of perceived breast cancer risk and the relation between perceived risk and breast cancer screening: a meta-analytic review. *Prev Med*, **38**, 388-402.
Lee C, Kim HS, Ham O (2000). Knowledge, practice, and risk of breast cancer among rural women in Korea. *Nursing Hlth Sciences*, **2**, 225-30.
Madan A, Barden C, Beech B (2000). Socioeconomic factors, not ethnicity, predict breast self examination. *Breast J*, **6**, 263-6.
Miller AM, Champion, VL (1996). Mammography in older women: one-time and three-year adherence to guidelines. *Nursing Res*, **45**, 239-45.
Narimah A (1997). Breast examination. Report of second national health and morbidity by Public Health Institute, Ministry of Health Malaysia, 145-148.
Nissan A, Spira M, Hamburger T, et al (2004). Clinical profile of breast cancer in Arab and Jewish women in the Jerusalem area. *Am J Surg*, **188**, 62-7.
Parkin DM, Bray F, Ferlay J, Pisani P (2005). Global cancer statistics, 2002. *CA Cancer J Clin*, **55**, 74-108.
Pearlman DN, Rakowski W, Ehrich B, Clark MA (1996). Breast cancer screening practices among black, Hispanic, and white women: reassessing differences. *Am J Prevent Med*, **12**, 327-37.
Persson K, Svensson P, Ek A (1997). Breast self-examination: an analysis of self-reported practice. *J Adv Nursing*, **25**, 886-92.
Petro-Nustus W, Mikhail B (2002). Factors associated with breast self examination among Jordanian women. *Public Health Nursing*, **19**, 263-71.
Rashidi A, Rajaram SS (2000). Middle Eastern Asian Islamic women and breast self examination, needs assessment, *Cancer Nurs*, **23**, 64-70.
Salde G, Dhanja, S, Shah N (2001). Asian Indian women: Knowledge, attitudes and behaviors toward breast cancer early detection. *Public Health Nursing*, **18**, 357-63.
Secginli S, Nahcivan N (2006). Factors associated with breast cancer screening behaviors in a sample of Turkish women: a questionnaire survey. *Int J Nursing Studies*, **46**, 161-71.
Smith R, Maira C, Ute S, et al (2006). Breast cancer in limited-resource countries: early detection and access to care. *Breast J*, **12**, 16-26.
Straughan P, Seow A (2000). Attitude as barriers in breast screening: a prospective study among Singapore women. *Soc Sci Med*, **51**, 1695-703.
Thongsuksai P, Sripung H (2000). Delay in breast cancer care: a study in Thai women. *Med Care*, **38**,108-14.
Usmani K, Khanum A, Afzal H, Ahmad N (1996). Breast cancer in Pakistani women. *J Environ Pathol Toxicol Oncol*, **15**, 251-3.
Wagle A, Komorita NI, Zxy-yann JL (1997). Social support and breast self-examination. *Cancer Nursing*, **20**, 42-8.
Wu T, West B, Chen Y (2006). Health beliefs and practices related to breast cancer screening in Filipino, Chinese and Asian-Indian women. *Cancer Detect Prevent*, [In Press]
Yarbrough S, Braden C (2001). Utility of health belief model as a guide for explaining or predicting breast cancer screening behaviors. *J Adv Nursing*, **33**, 677-88.
Yip CH, Ng EH (1996). Breast cancer- a comparative study between Malaysian and Singaporean women. *Singapore Med J*, **37**, 264-7.