

Breast Cancer Knowledge, Attitudes and Screening Behaviors - A Literature Review

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Abstract

Objective: To identify the factors, including knowledge, attitudes, beliefs, values, fears, and perceptions, which influence breast cancer screening behavior among different groups of people.

Methods: A structured literature search was undertaken, using the United States National Library of Medicine's PubMed database. Thirty-one breast cancer-related studies were selected; these were summarized by applying the Health Belief Model and Knowledge, Attitudes, and Behaviors Model to the framework.

Results: Most of the studies had been conducted in North America, and the designs used were mostly cross-sectional studies. The percentages of women who underwent mammography ranged from 5.3 to 82. Women who had performed BSE (breast self-examination) ranged from 6.4 to 83 percent, and women who had undergone CBE (clinical breast examination) ranged from 26 to 61 percent. The review found that not only did knowledge of breast cancer play an important role in people's behavior regarding breast cancer screening, but also regarding beliefs, attitudes, cultures, values, and perceptions.

Conclusion: This literature review addresses issues regarding the importance of knowledge, attitudes, beliefs, values and cultural awareness when implementing prevention programs. Further research needs to explore the threshold level of breast cancer knowledge in order to achieve a higher rate of the breast cancer screening.

Key words: breast neoplasm, knowledge, attitudes, perception, screening

บทคัดย่อ

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ภาควิชาเวชศาสตร์ป้องกันและสังคม คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

ปัจจุบันมะเร็งเต้านมยังคงเป็นสาเหตุการตายในอันดับต้นๆ ของหลายประเทศ อย่างไรก็ตาม หากตรวจพบมะเร็งตั้งแต่ระยะเริ่มแรก พบว่ามีโอกาสหายและสามารถลดอัตราการตายจากโรคได้ ดังนั้น การตรวจคัดกรองมะเร็งเต้านมจึงเป็นเรื่องสำคัญ การทบทวนวรรณกรรมนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีอิทธิพลต่อพฤติกรรมการตรวจคัดกรองมะเร็งเต้านมในประชากรกลุ่มต่างๆ โดยเฉพาะกลุ่มที่พบสัดส่วนการตรวจคัดกรองน้อย โดยปัจจัยที่ศึกษาได้แก่ ความรู้ เจตคติ และความเชื่อเกี่ยวกับมะเร็งเต้านมและการตรวจคัดกรอง ในการทบทวนวรรณกรรมนี้ ผู้วิจัยได้รวบรวมการศึกษาก่อนหน้าที่เกี่ยวข้องในช่วงระยะเวลา ๕ ปี ตั้งแต่เดือนกรกฎาคม ๒๕๔๗ ถึงเดือนกรกฎาคม ๒๕๕๒ ทั้งหมด ๓๑ การศึกษา โดยใช้ฐานข้อมูล PubMed ซึ่งเป็นบริการของหอสมุดการแพทย์แห่งชาติ และสถาบันสุขภาพแห่งชาติของประเทศสหรัฐอเมริกา ทั้งนี้รูปแบบการทบทวนวรรณกรรมนั้นได้ประยุกต์ใช้แบบแผนความเชื่อด้านสุขภาพ (Health Belief Model) และ ความรู้ เจตคติ และพฤติกรรม (Knowledge, Attitudes, and Behaviors Model) ในการวิเคราะห์เป็นหลัก

ผลจากการทบทวนวรรณกรรมพบว่า การศึกษาส่วนใหญ่เป็นการศึกษาที่เกิดขึ้นในประเทศสหรัฐอเมริกา และใช้

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การศึกษากาตดัคขวางในการศึกษาปัจจัยที่เกี่ยวข้องกับการตรวจคัดกรองมะเร็งเต้านม โดยพบว่าผู้หญิงร้อยละ ๕.๑ ถึง ๘.๒ ตรวจคัดกรองมะเร็งเต้านมโดยวิธีแมมโมแกรม ส่วนผู้หญิงร้อยละ ๖.๔ ถึง ๘.๑ ตรวจเต้านมด้วยตนเอง และ ร้อยละ ๒.๖ ถึง ๖.๑ ตรวจเต้านมโดยแพทย์หรือนุคลากรทางการแพทย์ที่ได้รับการฝึกอบรมด้านการตรวจเต้านม นอกจากนี้ การศึกษายังชี้ให้เห็นว่า ไม่เพียงแต่ความรู้เกี่ยวกับมะเร็งเต้านมเท่านั้นที่เป็นปัจจัยที่มีอิทธิพลต่อการตรวจคัดกรองมะเร็งเต้านม หากแต่ความเชื่อ เจตคติ ประเพณี และการรับรู้ต่างๆ เกี่ยวกับโรคมะเร็งเต้านมนั้น เป็นปัจจัยที่สำคัญที่มีอิทธิพลไม่ยิ่งหย่อนไปกว่ากันในการตรวจคัดกรองดังกล่าว โดยสรุป การทบทวนวรรณกรรมฉบับนี้ได้ชี้ให้เห็นถึงความสำคัญของปัจจัยด้านต่างๆ ที่ส่งผลต่อพฤติกรรมการตรวจคัดกรองมะเร็งเต้านม ซึ่งเป็นสิ่งจำเป็นที่จะต้องพิจารณาก่อนที่จะทำกิจกรรมรณรงค์การตรวจคัดกรองมะเร็งเต้านม อย่างไรก็ตาม ยังจำเป็นต้องมีการศึกษาวิจัยในเรื่องระดับความรู้เกี่ยวกับมะเร็งเต้านมว่าระดับใดเพียงพอที่จะส่งผลให้เกิดประสิทธิภาพสูงสุดในพฤติกรรมการตรวจคัดกรองต่อไป

คำสำคัญ: มะเร็งเต้านม ความรู้ เจตคติ การรับรู้ การตรวจคัดกรอง

Background and Rationale

Breast cancer is a major disease burden at the global level. According to the *World Health Report 2008*, cancer is one of the top 10 leading causes of death.⁽¹⁾ It is estimated that 7.4 million people died of cancer in 2004 and, if current trends continue, 83.2 million more will have died of cancer by 2015. Among women, breast cancer is the most common cause of cancer mortality, accounting for 16 percent of cancer deaths in adult women. Even though the incidence of breast cancer tends to be higher in developed countries than developing countries, breast cancer mortality is higher in the developing world.⁽²⁾

In the United States, except for skin cancers, it is the most common form of cancer among women. New cases of invasive breast cancer and carcinoma in situ (CIS) in 2009 are estimated to be 192,370 and 62,280, respectively. The chance of developing invasive breast cancer at some time in a woman's life is about 1 in 8.⁽³⁾

For developing countries, such as Turkey and Jordan, breast cancer is the most common form of cancer among women. In India, the incidence/mortality ratio was 0.48 compared with 0.25 in North America.⁽²⁾ One of the reasons for the high mortality rate in the developing world is the failure of early

detection. In general, the five-year survival rate for women with breast cancer is better when the disease is found in its early stage.⁽⁴⁾ The treatment is more effective and a cure is more likely at an early stage.

Furthermore, while there is no certain way to prevent breast cancer, it is crucial that it should be detected early. Breast cancer screening is an important public health secondary prevention method. Our study showed that mammography screening among women aged 50-69 years could reduce mortality from breast cancer by 15-25 percent.⁽⁴⁾ It not only helps individuals to get a better prognosis, but it helps decrease the disease burden on such countries. The World Health Organization (WHO) has raised issues concerning promoting awareness in the community and encouraging early diagnosis of breast cancer, especially for women aged 40-69 years who are attending primary health care centers or hospitals for other reasons, by offering clinical breast examinations.⁽⁵⁾

Guidelines recommended for breast cancer screening have been introduced in many countries. The most commonly used guidelines are those produced by the American Cancer Society (ACS).⁽⁶⁾ The ACS has recommended that (1) women aged 40 and older undergo a screening mammogram and clinical



breast exam (CBE) every year, (2) women in their 20s and 30s should have a CBE as part of a periodic health exam by a health professional preferably every three years, (3) BSE is an option for women, starting in their 20s, and (4) women at high risk (greater than 20% lifetime risk) should get an MRI and a mammogram every year. Women at moderately increased risk (15% to 20% lifetime risk) should talk with their doctors about the benefits and limitations of adding MRI screening to their yearly mammogram. Yearly MRI screening is not recommended for women whose lifetime risk of breast cancer is less than 15 percent.

However, many studies found that women did not take a screening guideline as their usual practice. In the United States, the mammography rates in women 40 years of age and older decreased from 70.1 percent in 2000 to 66.4 percent in 2005. Moreover, health professionals also did not follow the guideline,^(7,8) and inequality of breast cancer knowledge still exists across the population.⁽⁹⁻¹²⁾

In order to assess the lower breast cancer screening rate, it is crucial to understand the behaviors concerned. The guiding framework for the literature review has adopted the Precede-Proceed Model,⁽¹³⁾ Health Belief Model (HBM)⁽¹⁴⁾ and Knowledge, Attitudes, and Behaviors (KAB) Model to frame the review and use it as a guide to understand overall pictures of the factors that predict health-related behaviors, especially breast cancer screening. They are useful and widely employed in health promotion and prevention programs.

The result revealed controversy about whether and how good knowledge and a positive attitude regarding breast cancer, and the perception of disease were related to the screening behavior. Previous studies have found that knowledge is an important factor in women undergoing a breast cancer screening;^(11,12,15-17) however, some studies have found that

knowledge alone is not enough for people to undergo screening.⁽¹⁸⁾ Thus, this review is aimed at identifying the predisposing factors, including knowledge, attitudes, beliefs, values, and fears, which influence breast cancer screening behavior among different groups of people. The results of this literature review will help to clarify and increase understanding of the big picture concerning these factors regarding breast cancer screening among various groups of people.

Methods

In order to establish a broad structure for the review, we identified the epidemiology and general issues regarding breast cancer by accessing ACS, the International Agency for Research on Cancer (IARC), WHO, the United States Centers for Disease Control and Prevention (CDC), and the Medline Plus website. A structured literature search was then undertaken, using the U.S. National Library of Medicine's PubMed database to access studies regarding knowledge, attitudes, and behaviors with regard to breast cancer screening.

The search terms included breast neoplasms, screening, early diagnosis, early detection of cancer, mammography, breast self-examination, clinical breast examination, MRI, awareness, knowledge, attitude, behavior, and risk perception. In addition, we limited our search to English-language articles which had been published between July 10, 2004 and July 8, 2009, clinical trials, meta-analysis, practice guidelines, randomized controlled trials, review, case reports, comparative studies, controlled clinical trials, and journal articles. A five-year period was used because there was decreasing mammography utilization during those years, and a five-year period should provide us with updated data on this issue.

The results totalled 1,071 articles, initially identified according to the above-mentioned criteria. How-

ever, since we faced resource limitations in obtaining full-text articles, we thus included only the articles that afforded free access to the abstract and full text. As such, all abstracts and 214 full-text articles were reviewed. Overall, only 26 articles were included in this review. Items were excluded if they did not meet the objectives of the study, i.e. if they were not related to knowledge, attitudes and breast cancer screening behaviors, or other factors such as socio-economics regarding screening, or if the full-text articles were no longer available for free access.

Results and Discussion

General characteristics of the studies

We identified 31 studies involving knowledge, attitudes, and behaviors of breast cancer screening (Table 1). Of these, 18 were conducted in North America,^(9,17-32) 3 in Central Asia (Turkey^(15,16,33)), 2 in the Middle East (Israel,⁽¹¹⁾ Jordan⁽⁷⁾), 2 in Australia,^(12,34) 2 in Africa (Nigeria^(8,35)), 2 in Europe (Crete,⁽³⁶⁾ and the United Kingdom⁽³⁷⁾), 1 in South Asia (India⁽¹⁰⁾), and 1 in the South Pacific (Samoa).⁽³⁸⁾

The designs used in most of the studies were cross-sectional studies,^(7-12,15,17,18,22,23,26,27,31,33,35,37,39) although they also were qualitative,^(24,30,32,34,36,39) case-control,^(19,20) prospective,⁽²¹⁾ and experimental design studies.^(25,28,38) Since there is evidence that some ethnic groups or races, such as African-Americans, Hispanics, and Asian-Americans, had a lower rate of utilization of breast cancer screening, many studies focused on those subgroups. Thus, the participants comprised various races, such as Black,^(8,17,20,21,23,25,31) Hispanic,^(24,28) Caucasian,⁽²⁴⁾ Native American,⁽³¹⁾ Arabian,⁽¹¹⁾ and Asian.^(29,32,34) The age groups varied from 14 to 94 years; however, one study was conducted in high school students aged 14-19 years old.⁽¹⁶⁾

The percentages of women who underwent mam-

mography ranged from 5.3 to 82. Women who performed BSE accounted for 6.4-83 percent of the total, and women that had CBE accounted for 26 to 61 percent of the total.

Awareness, Knowledge, and Health Literacy

Knowledge among African-American, Hispanic, Asian-American women, and some ethnic groups

Most studies were conducted in African-American,^(17,20,23,25,31,39) Hispanic^(24,28) and Asian-American women;^(29,32,34) even though they have a lower incidence of breast cancer, these groups of women tended to have a higher mortality rate than their white peers.⁽³⁾ One possible explanation is that the disease had already been advanced when they sought medical care. Thus, many researchers tried to evaluate the factors that are barriers to early detection of breast cancer. Most of the studies applied the Health Belief Model in order to understand people's behaviors when they were undergoing breast cancer screening.

Most studies consistently found that breast cancer knowledge was associated with breast cancer screening behavior.^(11,12,15-17) People who had higher breast cancer knowledge tended to have undergone breast cancer screening, such as mammography and breast self-examination, and they adhered to the breast cancer screening guidelines. However, most studies found that many women still had poor knowledge and lacked awareness of breast cancer;^(10,12,15,33) such factors are the major barriers to breast cancer screening.

Nevertheless, one study found that knowledge alone does not lead women to opt for a personal risk assessment of breast cancer.⁽¹⁸⁾ This can be explained by the theory of the Precede-Proceed model which was developed by Green and Kreuter.⁽¹³⁾ They suggested that knowledge is only one predisposing

Table 1 Characteristics of included studies

Study ref.	Year	Country	Study designs	Participants	Age (yrs)	BSE* (%)	CBE# (%)	Mammo gram (%)	Main findings
Alkhasawneh ⁷	2007	Jordan	Cross-sectional	395 female nurses	21-51	18	-	-	Nurses had low level of knowledge regarding early detection and breast cancer
Ibrahim and Oduanya ⁸	2009	Nigeria	Cross-sectional	207 female doctors, nurses, and other healthcare professionals	Various	83	26	8	Only the doctor group had satisfactory knowledge of breast cancer risk factors
Kim et al. ⁹	2008	U.S. (CA)	Cross-sectional telephone/fin-person interviews	1,160 women (29% white, 14% African-American, 21% Latin-American, 36% Asian)	50-80	-	-	90	Family history and poor self-reported health status were associated with high risk perception
Somdatta and Baridalyne ¹⁰	2009	India	Cross-sectional	333 women in resettlement colony	16-80	-	-	-	Poor knowledge and lack of awareness were barriers to breast cancer screening
Soskolne et al. ¹¹	2007	Israel	Cross-sectional	510 Muslim Arab women	50-69	-	-	47	Younger ages, higher knowledge, and perceived risk were associated with screening
Villanueva et al. ¹²	2008	Australia	Breast Health Surveys	3,006 English-speaking Australian women	30-69	-	-	61.6	Gained knowledge was related to mammographic screening over 7 years.
Dundar et al. ¹⁵	2006	Turkey	Cross-sectional	244 women in rural area	20-64	10.2	61	5.3	Greater breast cancer knowledge was associated with BSE and mammography practice
Karayurt et al. ¹⁶	2008	Turkey	Cross-sectional	718 female high school students	14-19	6.7	-	-	BSE was associated with knowledge of breast cancer and knowledge of BSE
Sadler et al. ¹⁷	2007	U.S. (CA)	Beauty salon-based survey	1,055 African-American women	20-94	31	57	43 (age 40+)	Knowledge was associated with screening
Bartle-Haring ¹⁸	2008	U.S.	Survey	166 African-American and Caucasian women	18-80	-	-	-	Knowledge alone did not lead women to opt for a personal risk assessment
Armstrong et al. ¹⁹	2005	U.S. (PA)	Case-control	408 women with a family history of breast or ovarian cancer	19-89	-	-	-	African-American women were less likely to undergo genetic counseling. This racial disparity is not explained by difference in risk perception and attitudes about BRCA testing

*Breast self-examination, #Clinical breast examination

Table 1 (Continued) Characteristics of included studies

Study ref.	Year	Country	Study designs	Participants	Age (yrs)	BSE* (%)	CBE# (%)	Mammogram (%)	Main findings
Beckjord et al. ²⁰	2008	U.S. (MD)	Case control	572 low-income, urban, African-American women	45-93	-	-	73	More traditional values were associated with worse screening histories and lower intentions for future screening
Calvocoressi et al. ²¹	2004	U.S. (CT)	Prospective	1,229 African-American and white women	40-79	-	-	52.2	Women who had higher "susceptibility perception" to breast cancer were less likely to adhere to screening guidelines
David et al. ²²	2005	U.S. (MA)	Cross-sectional	392 multiethnic inner-city women	40+	-	-	66-82	Greater knowledge of breast cancer screening was associated with mammography, mammography use was similar in Haitian, African-American, Caribbean, and Latin American groups
Edwards et al. ²³	2008	U.S. (NY)	Cross-sectional	140 women of African descent, with family history of breast cancer	22-79	-	-	-	"Future" orientation was associated with greater endorsement of BRCA testing advantages
Fernandez et al. ²⁴	2005	U.S. (TX, NM)	Focus groups and in-depth personal interviews	58 Hispanic and African-American women	50+	-	-	-	Non-adherence to screening was associated with the belief that breast cancer always results in death; women who were adherent felt at risk of developing breast cancer.
Garza et al. ²⁵	2005	U.S. (MD)	Modified time series design	119 low-income African-American women	40-65	-	-	-	Knowledge was associated with improved mammography
Gross et al. ²⁶	2006	U.S.	Cross-sectional	6,002 women	45-75	-	-	63.1	Women with higher perceived risk were more likely to undergo mammography
Haggstrom and Schapira ²⁷	2006	U.S. (WI)	Survey	207 black and white women	40-69	-	-	-	Black women had more accurate perceptions of breast cancer survival and benefits of screening than white women
Hall et al. ²⁸	2007	U.S. (AK)	Experimental	31 Hispanic women	25-56	-	-	-	Multifaceted, culturally sensitive, and linguistically appropriate breast cancer education programs appeared to help increase knowledge and reduce barriers to mammography
Lee et al. ²⁹	2007	U.S. (CA)	Descriptive, qualitative analysis	33 Korean-American women	40-85	-	-	64	Barriers to testing included information about cancer and faith in God
Lyttle and Stadelman ³⁰	2006	U.S. (VA)	Six focus groups	69 Appalachian women	25-64	-	-	-	Cost, fear, and embarrassment were main barriers to screening

*Breast self-examination, #Clinical breast examination

Table 1 (Continued) Characteristics of included studies

Study ref.	Year	Country	Study designs	Participants	Age (yrs)	BSE* (%)	CBE# (%)	Mammogram (%)	Main findings
Paskett et al. ³¹	2004	U.S. (NC)	Cross-sectional study	892 triracial (African-American, Native American, white) rural women	40+	-	50	58	Native American and African-American women had more barriers to screening, including lower levels of knowledge and more inaccurate beliefs when compared with white women
Wu and Bancroft ³²	2006	Mid-western U.S.	A qualitative, exploratory approach, with focus groups	11 Filipino-American women	45-80	-	-	-	Culture's unspoken traditions and beliefs caused some of the women to feel uncomfortable with touching or exposing their bodies or talking about their breasts. This may be one of the barriers to breast cancer screening
Demirkiran et al. ³³	2007	Turkey	Cross-sectional analytic	289 female nurses and teachers	Mean 31.8 & 39.8	17.7 & 21.8	-	-	Lack of BSE knowledge was associated with not performing BSE in teachers, both nurses and teachers had poor BSE technique
Kwok et al. ³⁴	2005	Australia	Qualitative analysis (in-depth interview)	20 Chinese-Australian women	Mean 59.9	-	-	15	Barriers included fear of mammography, modesty, and fear of stigmatization
Oluwatosin and Oladepo ³⁵	2006	Nigeria	Cross-sectional	407 rural women	20-60	6.4	-	-	Most respondents were not aware of the early warning signs of breast cancer
Trigoni et al. ³⁶	2006	Crete	Semi-structured individual interviews	30 lay women and 28 physicians	45-65	-	-	50	Barriers to mammography included fear, absence of any symptoms, cost, lack of information, and embarrassment
Webster and Austoker ³⁷	2006	United Kingdom	Questionnaire survey	1,000 women	49-64	-	-	-	Inaccurate knowledge was associated with lower formal education, 36% of women knew the lifetime risk of developing breast cancer
Mishra et al. ³⁸	2007	Samoa	Community-based participatory cluster randomized controlled intervention	776 women	42+	-	-	-	High perceived susceptibility to breast cancer and endorsement of culture-specific beliefs were associated with mammography use in women who were unaware of mammography.
Salant et al. ³⁹	2006	U.S.	Semi-structured interview	33 women in public hospital (75% African-American)	33-77	-	-	-	Women did not feel at high risk because they did not have signs and symptoms of cancer

*Breast self-examination, #Clinical breast examination

factor out of all the factors that influence behavior and the environment. They further explained that health knowledge of some kind, at least some awareness of a need and an action that can be taken to meet that need, is probably necessary, but not sufficient for a conscious personal health action to occur.⁽¹³⁾

Green and Kreuter suggested that a threshold of knowledge may need to be met for some actions to occur, such as recognizing the breast cancer before one would go for breast cancer screening. However, after that level of knowledge or health literacy is attained, additional information would not necessarily promote additional behavior change. Most of the research studied only this aspect of predisposing factors,^(16,17,22,25,33) while a few had assessed other factors that may also influence breast cancer screening, such as the availability and accessibility of health resources, community or government laws, family, peers, health providers, and living conditions.⁽²⁴⁾ As such, while interpreting the results, it is important to realize that knowledge alone may not be the only reason for people to seek screening. Many studies suggested that implementing an educational program is one of the things to be further considered.^(10,16,28) In fact, it is necessary to first evaluate which level of knowledge is the threshold for people to adopt behavioral change. Otherwise, implementing educational programs may not lead people to reach that threshold, and as such may not be helpful, or if the threshold is exceeded, spend funds that could be better utilized elsewhere. This is especially so in developing countries where resources are scarce and resources must be allocated to the right program intervention; this is a wise step toward success.

Knowledge among health care workers and teachers

While nurses, health care professionals, and teachers are role models for teaching and educating

women regarding breast self-examination or screening, all of the studies among these groups found that knowledge was still lacking regarding early detection and breast cancer.^(7,8,33) These groups also performed poor BSE technique. Even though there has been some debate recently on the role of BSE, whether or not it prevents breast cancer mortality, BSE is still useful for raising self-awareness of breast cancer and urging women to seek medical care. Thus, it is necessary for health care workers to improve their knowledge in order to correctly educate people.

Knowledge among teenagers

While breast cancer occurs mostly at older ages, it sometimes is found in younger women. Even though only 5 percent of all breast cancer cases occur in women under 40 years of age, this group of people experience a high mortality rate from breast cancer. Younger women generally do not consider themselves to be at risk of breast cancer. As such, the disease is often advanced when it has been diagnosed.

Only one study (in Turkey) assessed the breast cancer knowledge and behaviors of women aged 14 to 19 years.⁽¹⁶⁾ The study showed that more than half (62%) of students never heard about BSE. In fact, only a small percentage of the students knew about the appropriate time for BSE. This reflects the poor prospects for future breast cancer screening behavior. The American Cancer Society guidelines recommend that women in their 20s and 30s undergo a CBE as part of their periodic health exam by a health professional, preferably every three years. BSE is an option for women starting in their 20s.

Beliefs, Values, Fears and Attitudes

Among African-American women, the existence of more traditional values was associated with worse screening histories and lower intentions for future



screening.⁽²⁰⁾ Consistent with another study on the attitude toward BRCA testing on African-American women who had a personal and/or family history of cancer was a finding that suggests that women who place a high value on the future (future orientation) are positively associated with perceiving the pros of testing.⁽²³⁾

Other studies suggested that minority women⁽²⁴⁾ and Muslim Arab women⁽¹¹⁾ hold fatalistic beliefs about cancer, and these are a major reason why women do not participate in repeat screening. Fatalism holds that events are predetermined in advance; thus, human beings are powerless to change their fate. Fatalism in this context may be defined as the belief that, if one gets breast cancer, he/she will die, and that person is helpless to prevent such an outcome.⁽²⁴⁾ A study in African-American women showed that black women were more likely than white women to have more pessimistic perceptions of the benefit of screening. This fatalism among black women may contribute to skepticism about the chances that screening mammography will change the course of the disease.⁽²⁷⁾

Fear of pain and fear of finding something seriously wrong, such as cancer, are also other important reasons why women did not attend mammography screening.^(30,32,36) The “fear of breast cancer” was also higher among nurses; this may be because of the working environment that includes meeting such patients every day.⁽³³⁾

Mammographic screening is an uncommon health practice among Chinese-Australian women. They view cancer as a stigmatizing disease. Personal health issues, including cancer, are taken as very private matters which should be shared only within families. This may help explain the lower utilization of screening among Chinese-American women.⁽³⁴⁾

Korean-American women believe that their faith helps them in a positive way by relieving their stress, which, in turn, improves their mental and physical health and perhaps lowers cancer risk. Some interpret destiny as God’s will; this causes them to believe that screening is not necessary.⁽²⁹⁾

For Filipino-American women, their culture’s unspoken traditions and beliefs caused some of the women to feel uncomfortable about touching or exposing their bodies or talking about their breasts. This may be one of the barriers to breast cancer screening.⁽³²⁾

Perceived benefits, perceived barriers, and perceived susceptibility

The association between risk perception and screening behavior is still controversial. High risk perception was associated with a family history of cancer and poor self-reported health status.⁽⁹⁾

One study found women that had a high perception of their cancer risk were more likely to undergo routine mammography.⁽²⁶⁾ Moreover, white women were more likely than African-American or Hispanic women to perceive themselves to have an increased cancer risk.⁽³¹⁾ Consistent with the Haggstrom and Schapira study, which found that black women were more likely than white women to accurately perceive the relationship between breast cancer survival and screening mammography,⁽²⁷⁾ another study found that African-American and white women used different factors to determine whether or not to obtain an individualized risk assessment of breast cancer. Knowledge is a predictor of electing individualized risk assessment for African-American women, while “worried” is the predictor to adopt individualized risk assessment for white women.⁽¹⁸⁾

However, one study in low-income African-American women found that perceived benefits, per-

ceived barriers, and perceived susceptibility were not important predictors of participation in breast cancer screening. Women prioritized things other than screening or health, and those perceptions could not apply in this situation.⁽²⁵⁾

The prospective study found that both white and black women who believed that their susceptibility was high (i.e. they were very likely to develop breast cancer) were less likely to adhere to screening guidelines than women who believed their susceptibility was moderate or low. It could be explained that perceived susceptibility has less influence on a health behavior once that behavior is habitually practiced.⁽²¹⁾

One study showed that women did not see themselves at high risk of breast cancer, because they had no signs or symptoms of breast cancer.⁽³⁹⁾

Conclusion

The benefits of early detection of breast cancer are well known; breast cancer screening is key to helping to detect patients at an early stage. However, in many countries the rate of screening remains low. This literature review has addressed other aspects to be considered when implementing a breast cancer screening program. It offers an overall picture regarding knowledge, attitudes, behaviors and perceptions of breast cancer and breast cancer screening in different groups of people, especially in groups that typically have high breast cancer mortality. This review raises issues regarding the importance of values and cultural awareness when implementing a prevention program in order to achieve a high rate of breast cancer screening.

Further research

Further research needs to uncover the threshold level of breast cancer knowledge. In other words, attempts should be made to try to answer at what

level of knowledge behaviors change, i.e. cause more women to adopt the screening test. It is imperative to understand this level of knowledge, as it will help to justify a correct level of breast cancer screening. Moreover, it will help in allocating resources to the right place.

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