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### Beliefs Related to Breast Cancer and Breast Cancer Screening Among Lebanese Armenian Women

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## Beliefs Related to Breast Cancer and Breast Cancer Screening Among Lebanese Armenian Women

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*Our purpose of this article was to investigate women's beliefs about breast cancer, breast cancer screening, and intervention programs. We designed the study using a cross-sectional/descriptive correlation. The participants were drawn from a convenience sample (N = 94). The instrument included Champion's Revised Health Belief Model Scale (CHBMS). Analysis was performed using SPSS (2005), 15.0. More than sixty-four percent (64.8%) of women surveyed were over 41. Results showed that 80.9% of women surveyed had heard of breast self-exams (BSEs), while 76.6% had heard of mammography. However, 53.2% never practiced breast self-examinations, and 79.6% never underwent mammography. Mean belief scores follow: low susceptibility (14.32), barriers to BSE (15.24), barriers to mammography (14.85), high seriousness (23.42), benefits to breast self-examination (22.7), confidence (36.45), health motivation (27.27), and benefits to mammography (24.28). Significant relationships included the relationship between barriers to breast self-examination and whether women had heard about breast self-examinations ( $p = .02$ ); the relationship between susceptibility and whether women had heard of or underwent mammography ( $p = .027$ ); the relationship between confidence and whether women had heard of mammography ( $p = .056$ ); the relationship between confidence and perceived financial status ( $p = .05$ ); and benefits of mammography ( $p = .05$ ). Appropriate interventions are developed.*

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Breast cancer is considered to be the leading type of cancer in women both in industrialized as well as developing countries. In Lebanon, during the year 2003, a total of 4,047 new cancer cases were diagnosed in women, of which breast cancer alone constituted around 42% of the cases. About four in 10 of all cancers diagnosed in women are now breast cancer, one in five (22%) for the entire cancer caseload (Ministry of Public Health, World Health Organization [WHO], & National Non-Communicable Diseases programme [NCDP], 2003). Breast cancer remains the most commonly diagnosed cancer in Lebanon (Ghosn, Tannous, & Gedeon 1992; Ministry of Public Health et al., 2003).

We conducted this descriptive cross-sectional study to investigate the beliefs of Lebanese Armenian women related to breast cancer and breast cancer screening to encourage women to practice regular screening to detect and treat breast cancer early. Our findings may benefit health professionals caring for women with similar sociocultural backgrounds in any country. The earlier breast cancer is found, the better the chances that treatment will work and will enhance the long-term survival (American Cancer Society [ACS], 2008b). Mammography, clinical breast examination (CBE), and breast self-examination (BSE) are secondary preventive methods used for screening in the early detection of breast cancer. In spite of some controversy created by the United States Preventive Services Task Force, this is the recommendation: Start mammography at age 50 and continue through age 74, once every 2 years (Adamson, 2009); the ACS recommends the following guidelines for finding breast cancer early in women without symptoms: women aged 40 and above should have a mammogram every year and should continue to do so as long as they are in good health. While mammograms can miss some cancers, they are still a very good way to find cancers. Women in their twenties and thirties should have a CBE as part of a regular exam by a health expert, preferably every 3 years. After age 40, women should have a breast exam by a health expert every year. Breast self-examination (BSE) is an option for women in their twenties to get to know how their breasts feel. Nurses should teach women the right procedure for BSE and to see their doctor right away if they notice any changes (ACS, 2009).

The risk of breast cancer increases with age. The primary factors that increase the risk of breast cancer in women include certain inherited genetic mutations, family history of breast cancer, a biopsy-confirmed hyperplasia (ACS, 2008a). Other factors that increase breast cancer risks include a long menstrual history, obesity mainly in adulthood or after menopause, recent use of contraceptives, postmenopausal hormone therapy, never having had children or having the first child after age 30, not breast-feeding, ethnicity characteristics, exposure to radiation, and consumption of one or more alcoholic beverages per day (ACS, 2008a).

No published studies were found to date that have looked into the beliefs related to breast cancer either among Lebanese or among Lebanese Armenian ethnic women. Our purpose was to investigate beliefs related to breast cancer as well as the practice of BSE and mammography among a group of Lebanese Armenian women. The results of this study may provide a baseline assessment for future intervention programs to promote early detection and early treatment of breast cancer.

In this study, we tried to address the following research questions:

1. What is the frequency of the respondents' screening behaviors?
2. What are the respondents' beliefs about breast cancer?
3. What is the relationship between the respondents' demographic characteristics and their screening behaviors?
4. What is the relationship between the respondents' demographic characteristics and their beliefs about breast cancer?
5. What is the relationship between the respondents' beliefs about breast cancer and their screening behaviors?

#### Theoretical Framework: Health Belief Model (HBM)

The HBM is a model that adapts theories from the behavioral sciences in order to examine health-related problems. Introduced by Hochbaum, Leventhal, Kegels, and Rosenstock in 1950s, the HBM initially included four concepts: a) perceived personal risk for a health condition (susceptibility); b) perceived personal harm from the condition (seriousness); c) perceived positive attributes of an action (benefits); and d) perceived negative aspects related to an action (barriers; Rosenstock, 1966). Later, Rosenstock, Strecher, and Becker (1988) added the following concepts: health motivation, the belief and interest in general health, and confidence—the conviction of a person that an action will achieve a desirable outcome. In addition, cues to action (stimulus) are needed to trigger protective behavior. Cues to action could be internal, such as perception of a body state, or external, such as mass media campaigns, advice from others, reminder postcards from health care providers, illnesses of family members or friends, and newspaper or magazine articles that may help motivate clients to take action (Salazar, 1991).

According to HBM, therefore, a woman who perceives that she is susceptible to breast cancer and believes that breast cancer is a serious disease would be more likely to perform regular breast examinations. Similarly, a woman who perceives more benefits and fewer barriers to breast examinations and has a cue would be more likely to perform breast examination, as would a woman who wants to improve her health and is confident of breast cancer examination (Champion, 1993).

## Background

The HBM has been used in several studies as a theoretical framework to study breast cancer detection behaviors (Champion & Menon, 1997; Foxall, Barron, & Houfek, 1998; Hoeman, Ku, & Ohl, 1996; Lu, 1995; Petro-Nustus & Mikhail, 2002; Russell, Perkins, Zollinger, & Champion, 2006; Savage & Clarke, 1996; Secginli & Nahcivan, 2006; Yarbrough & Braden, 2001).

Lu (1995) conducted a study among 174 Asian women with a mean age of 31 years living in China using a 38-item 5-point Likert scale survey developed by Champion. The findings indicated that 15% of women examined themselves monthly; 48% reported never having performed a BSE; 50% had no opinion whatsoever on perceived susceptibility of breast cancer; 80% recognized the efficacy of BSE although they did not perform it; and 10% of the variance on BSE was accounted for by perceived competence. In addition, Lu noted a tendency among women to attribute the cause of cancer to fate.

Savage and Clarke (1996) studied the intention to practice BSE among women aged 50–70 years, in Victoria, Australia. The authors found that four variables were positive predictors of BSE intentions: self-assurance (confidence in doing BSE correctly), knowledge of BSE issues, concern about getting breast cancer, and employment status.

In their study on how cultural beliefs and understanding among Chinese women may influence participation in early detection, Hoeman, Ku, and Ohl (1996) reported that cultural beliefs about modesty, husband's involvement, and the self-care relationship between health and body functions influenced women's use of early detection techniques. Early detection was not a clear concept to the women; in fact, 80% of the women believed that if they performed monthly BSE they would prevent breast cancer. In addition, women did not believe that they were susceptible to breast cancer nor did they perceive it to be serious. A "fatalistic belief" prevailed among women as they related the occurrence of cancer to fate. Similarly, their reluctance to practice preventive health measures in the absence of illness was found to influence their practice of BSE, indicating a previously held perception that only sick people need to visit doctors.

Champion and Menon (1997) studied variables associated with mammography and BSE in a sample of low-income African American women aged 45–60 years. Variables studied included predisposing, enabling, and need from Anderson's theoretical framework (Anderson, Aspergren, & Jazon, 1998) and perceived susceptibility, benefits, barriers, confidence, knowledge, physicians' recommendations, demographic characteristics, past experiences, and health insurance from the HBM framework. Variables that significantly predicted either frequency or proficiency of BSE included susceptibility, benefits, confidence, knowledge, barriers, and regular visits to a physician.

Even though the ACS (2008b) considers BSE as optional since it plays a small role in detecting breast cancer, BSE is considered to be important

for younger women. Breast self-examination (BSE) training and adherence are a gateway to health promotion behavior that provides women with the knowledge that sets the stage for CBE and mammography screening guidelines later in life. Screening is linked to perceptions of risk, benefits, and barriers through a reasoning process that includes personal and social influences and attitudes (Yarbrough & Braden, 2001).

Russell and colleagues (2006) conducted telephone and in-person structured interviews on the sociocultural context of mammography screening use, in a socioeconomically diverse sample of African American and Caucasian women. Items used previously validated scales based on the Cultural Assessment Model for Health and the HBM. Reported findings were that African American women were more fatalistic about breast cancer and perceived fewer benefits to screening. Mammography screening-adherent women were more future oriented, believed that they had less control over finding health problems early, had fewer barriers to screening, and experienced more physical spatial discomfort during the screening procedure than nonadherent women. Furthermore, several of the cultural beliefs were not significantly different by race or ethnicity. Cultural and health beliefs, however, were significant predictors of mammography screening.

Secginli and Nahcivan (2006) studied BSE and mammography rates and examined variables related to breast cancer screening behaviors in a convenient sample of 656 Turkish women attending three health centers and two maternal health centers, using an adapted version of the revised CHBMS. Results indicated that only 17% of the sample reported performing BSE regularly, and 25% of women 40 years and older reported at least having undergone one mammogram. Higher confidence; fewer barriers; having heard/read about breast cancer, BSE, and mammography; and having a gynecologist as a regular physician were significantly associated with frequently performing BSE and mammography (Secginli & Nahcivan, 2006).

Petro-Nustus and Mikhail (2002) in a study of factors associated with BSE among Jordanian women from two universities found that 36% of employees and 64% of graduate and undergraduate students reported that although the majority (67%) of the study population had heard/read about BSE, only a quarter of them had ever practiced BSE in the previous year, and only 7% had performed it on a regular monthly basis. Older age, completion of high school or a higher degree, having heard or read about breast tumors, and personal history of breast tumors were found to strongly influence BSE practice in the previous year. In addition, variables like confidence, motivation, susceptibility, and fewer barriers showed a positive association with BSE practice in the previous year, while benefits, susceptibility, and motivation influenced positively the intention to perform BSE in the future.

In Lebanon, there are no studies conducted looking at the beliefs related to breast cancer and screening; however, a qualitative study on the lived experience of Lebanese patients with cancer reported that reliance on God

and divinity was one of the eight core themes identified (Doumit, Abu-Saad Huijer, & Kelley, 2007). In this study, all participants described their full dependency and reliance on God and explained how the disease was created by God who has the power to stop it. The authors described how the term “God” is very commonly used in the Lebanese language; most Lebanese, regardless of their religion, consider God to be powerful and capable of everything.

The Lebanese generally understand and accept the biological mechanism of health and disease. Many, however, still attribute disease to the “evil eye” of jealous acquaintances. Lebanese are superstitious and prefer to ensure additional “heavenly” support for health problems (Adib, 2008).

## METHODS

### Setting, Sample, and Procedure

We conducted this descriptive, cross-sectional correlational study in the Araxy Boulghurdjian Socio-Medical Center (ABSM) of the Armenian Relief Cross in Lebanon (ARCL). The ABSM is a primary health care center, not for profit, located in a densely populated area of Bourj-Hammoud in the Great Beirut region. The population consists mostly of the Armenian ethnic minority group.

The study population consisted of Lebanese Armenian women, members of ARCL, a voluntary organization comprising approximately 5,000 members in 25 branches in Lebanon. Members of ARCL are Lebanese Armenian women 18 years of age and older. A convenience sample of 94 participants, who were attending a regular general assembly, was invited to participate. The respondents signed a written consent after being reassured about the confidentiality of the information obtained.

### Instrument

The instrument used was a self-administered questionnaire, consisting of two parts. Part one was composed of 13 items: nine items related to sociodemographic variables and four related to breast cancer screening. Part two included 53 items from the revised version of the CHBMS (Champion, 1993). The CHBMS was used after securing written permission from the author. The CHBMS was translated and culturally adapted to Armenian by the primary investigator, and then it was back-translated into English by a different person. The tool was piloted tested; few revisions were made and then administered to the study population.

Sociodemographic variables included age and birth date, marital status, educational level, and perceived economic status. The educational level was classified as elementary, intermediate, secondary, and university. We

evaluated the perceived economic status by asking each participant to describe her economic status as poor, average, good, or very good. We used perceived economic status rather than actual yearly income for the following reasons: income may not accurately reflect economic status because of rapid inflation in the country; and women may not accurately report income. We addressed screening and awareness about breast cancer by the following four items: a) whether the respondent had ever heard about BSE; b) whether the respondent had ever performed BSE; c) whether the respondent had ever heard about mammography; and d) and whether the respondent had ever undergone mammography examination.

Part two of the questionnaire consisted of eight scales: a) susceptibility (5 items); b) seriousness (7 items); c) benefits-BSE (6 items); d) barriers-BSE (6 items); e) confidence (11 items); f) health motivation (7 items); g) benefits-mammography (6 items); and h) barriers-mammography (5 items). Items were rated on a 5-point Likert scale ranging from strong disagreement (1 point) to strong agreement. Minimum and maximum values for subscales are susceptibility (5–25); seriousness (7–35); benefits-BSE (6–30); barriers-BSE (6–30); confidence (11–55); health motivation (7–35); benefits-mammography (6–30); and barriers-mammography (5–30). Higher scores indicate stronger feelings related to that construct. Reported Cronbach's alpha for the CHBMS ranged from 0.69 to 0.83 (Champion, 1993).

## Analysis

We used the Statistical Package Social Sciences (SPSS), version 15.0, to statistically analyze the data. We used descriptive statistics (means, standard deviations, and frequencies) for describing the participants' sociodemographic and general health characteristics. In addition, we used independent samples *t*-test and ANOVA with Tukey test for multiple comparisons, and chi-square analysis was used. Statistical significance was set at  $p = .05$ .

## RESULTS

### Sample Characteristics

The respondents' mean age was 45.14 ( $SD = 10.35$ ; range 26–68), with 64.8% above the age of 41; 92.5% were ever married; 46.8% had at least secondary education; and 81.5% perceived their economic status as average and above with only 18.5% considering themselves as poor (Table 1).

### Breast Cancer Screening: Awareness and Behaviors

Eighty-one percent of respondents reported that they had heard of BSE, however, 53.2% reported that they had never performed BSE, and only



**TABLE 1** Sociodemographic Characteristics of the Respondents ( $N = 94$ )\*

Age (years)	<i>N</i>	%
Mean ( <i>SD</i> ) = 45.14(10.35)		
18–30	5	5.5
31–40	27	29.7
≥41	59	64.8
Marital status		
Single	7	7.5
Ever been married	86	92.5
Educational level		
Elementary	21	22.8
Intermediate	28	30.4
Secondary	33	35.9
University	10	10.9
Perceived financial status		
Poor	17	18.5
Average	52	56.5
Good	19	20.7
Very good	4	4.3

\*Information is based on the number of respondents who answered each question; as a result, the total *N* values for each variable might not sum to 94 due to missing data.

14.9% stated that they performed BSE on a regular basis. In addition, 76.6% of the respondents reported that they had heard of mammography, but the majority (79.6%) reported never having had a mammogram in their lifetime (Table 2).

**TABLE 2** Breast Cancer Screening: Awareness and Behavior ( $N = 94$ )

Awareness	<i>N</i>	%
Have you ever heard of breast-self exam?		
Yes	76	80.9
No	18	19.1
Have you ever heard of mammography?		
Yes	72	76.6
No	22	23.4
Behavior		
Have you ever done breast-self exam?		
Always	14	14.9
Sometimes	30	31.9
Never	50	53.2
Have you ever done mammography?		
Last year	12	12.9
Two or 3 years ago	2	2.2
More than 3 years ago	5	5.4
Never	74	79.6

**TABLE 3** Respondents' Beliefs About Breast Cancer: Mean Scores CHBMS ( $N = 80$ )\*

	Mean	SD	Range of scores
1. Susceptibility score	14.32	4.33	5–25
2. Seriousness score	23.42	4.80	7–35
3. Benefits (BSE)	22.70	4.11	6–30
4. Barriers (BSE)	15.24	6.92	6–30
5. Confidence	36.45	7.37	11–55
6. Health motivation	27.27	3.62	7–35
7. Benefits (Mammography)	24.82	4.11	6–30
8. Barriers (Mammography)	14.85	2.83	5–25

\*Note: 14 respondents answered only the demographic and screening behaviors sections.

### Respondents' Health Beliefs

Average responses for the eight belief scales are summarized in Table 3. Results indicate that respondents believe that they have low levels of perceived susceptibility to breast cancer (14.32; 4.33) and perceived barriers to performance of BSE (15.24; 6.92) and mammography (14.85; 2.83), and average to high levels of seriousness (23.42; 4.80), benefits of BSE (22.70; 4.11) and mammography (24.82; 4.11), confidence (36.45; 7.37), and health motivation (27.27; 3.62; see Table 3).

### Sociodemographic Characteristics, Breast Cancer Screening Behaviors, and Beliefs

Younger women were more likely to have heard of mammography than older ones (96.3% of those aged 31–40 years vs. 67.8% of those older than 40 years;  $p = .016$ ). In terms of the screening behaviors, there was a tendency for those with above high school education to do BSE more often than those with lower educational level ( $p = .07$ ). No other significant relationships were found between sociodemographic and the screening behavior variables. There was no significant difference between age, level of education, and any of the beliefs about the breast cancer; respondents who were ever married had significantly higher scores on confidence ( $p = .035$ ) and benefits of mammography ( $p = .022$ ) than the single respondents and lower scores on barriers to BSE ( $p = .001$ ; Table 4).

Respondents who perceived their financial status as very good had the highest scores on the benefits of mammography and confidence compared with those who perceived their financial status as poor, average, or good (Table 4).

**TABLE 4** Relationship Between Demographic Characteristics and Beliefs About Breast Cancer Mean (*SD*, *N* = 80)

	Susceptibility score	Seriousness score	Benefits (BSE)	Barriers (BSE)	Confidence	Health motivation	Benefits (Mammography)	Barriers (Mammography)
Age								
18–30 years	13.40 (3.36)	22.60 (7.23)	23.00 (1.87)	15.00 (4.85)	34.40 (1.81)	24.80 (2.77)	23.60 (3.91)	15.00 (1.22)
31–40 years	14.12 (4.13)	23.92 (4.77)	22.87 (3.64)	16.00 (10.91)	35.71 (8.26)	28.08 (2.87)	24.58 (4.50)	14.50 (3.17)
>41 years	14.71 (4.48)	23.28 (4.62)	22.59 (4.59)	14.84 (4.18)	37.00 (7.43)	27.12 (4.00)	24.79 (3.99)	14.96 (2.84)
<i>p</i> value	.736	.806	.952	.799	.649	.173	.825	.808
Marital status								
Single	12.57 (4.03)	21.86 (4.91)	21.71 (2.29)	23.42 (18.13)	30.86 (7.29)	25.00 (2.52)	21.28 (4.23)	15.71 (2.75)
Ever been married	14.61 (4.26)	23.51 (4.74)	22.78 (4.27)	14.51 (4.23)	37.01 (7.25)	27.49 (3.68)	24.96 (3.95)	14.76 (2.86)
<i>p</i> value	.228	.387	.519	.001	.035	.085	.022	.403
Educational level								
Elementary	14.44 (3.97)	23.61 (4.45)	22.94 (4.73)	15.39 (3.99)	37.28 (9.93)	27.50 (4.59)	23.78 (4.38)	15.00 (2.91)
Intermediate	15.48 (4.08)	23.43 (5.49)	22.74 (5.08)	15.87 (4.39)	36.61 (5.69)	27.35 (3.56)	24.69 (4.01)	15.13 (1.66)
Secondary	13.87 (4.69)	23.10 (4.84)	22.80 (3.30)	15.56 (9.91)	35.73 (7.41)	27.37 (3.31)	24.77 (3.87)	14.20 (3.42)
University	13.28 (3.99)	23.28 (4.19)	21.43 (2.99)	12.57 (4.79)	37.28 (6.75)	26.43 (3.31)	26.14 (5.11)	15.86 (3.13)
<i>p</i> value	.519	.992	.768	.591	.946	.864	.421	.404
Perceived financial status								
Poor	13.60 (4.32)	21.40 (5.15)	23.33 (4.15)	12.93 (4.93)	34.06 (6.22)	28.00 (4.09)	24.66 (3.13)	15.60 (2.64)
Average	14.62 (3.61)	23.23 (4.35)	22.36 (4.17)	14.38 (3.62)	37.29 (6.89)	26.57 (3.29)	24.91 (4.27)	14.04 (2.60)
Good	14.93 (4.92)	26.50 (5.03)	22.78 (4.13)	21.00 (13.05)	35.78 (8.67)	28.28 (3.81)	23.50 (3.25)	17.21 (2.35)
Very good	15.00 (14.14)	21.50 (0.71)	25.50 (6.36)	13.50 (2.12)	45.00 (14.14)	32.50 (3.53)	29.50 (7.78)	11.50 (3.53)
<i>p</i> value	.942	.226	.564	.147	.051	.129	.051	.151

**TABLE 5** Relationship Between Beliefs About Breast Cancer and Screening Behaviors ( $N = 80$ )

	Have you ever done BSE? Mean ( <i>SD</i> )			<i>p</i> value
	Always	Sometimes	Never	
1. Susceptibility score	12.92 (1.24)	13.61 (4.23)	15.22 (4.25)	.191
2. Seriousness score	23.61 (3.48)	22.42 (5.20)	24.00 (4.89)	.532
3. Benefits (BSE)	24.38 (3.97)	22.69 (3.99)	22.17 (4.11)	.185
4. Barriers (BSE)	13.30 (3.59)	13.96 (4.57)	16.66 (8.56)	.250
5. Confidence	41.69 (8.39)	36.19 (6.32)	34.95 (7.06)	1.00
6. Health motivation	28.15 (4.16)	27.65 (3.34)	26.76 (3.62)	.421
	Have you ever done mammography? Mean ( <i>SD</i> )			<i>p</i> value
	Ever done		Never done	
1. Susceptibility score	15.44 (5.79)		14.05 (3.89)	.375
2. Seriousness score	24.62 (4.48)		23.12 (4.86)	.266
3. Confidence	42.87 (7.04)		34.84 (6.57)	.000
4. Health motivation	29.12 (4.01)		26.81 (3.98)	.021
5. Benefits (Mammography)	28.19 (3.54)		23.73 (3.70)	.000
6. Barriers (Mammography)	13.62 (4.24)		15.16 (2.30)	.181

### Relationship Between Beliefs About Breast Cancer and Screening Behaviors

Table 5 displays the relationship between the respondents' screening behaviors and their beliefs about breast cancer.

There was no significant difference in beliefs about breast cancer by frequency of doing BSE. Respondents who had never done BSE perceived themselves to be more susceptible for breast cancer than those who do it regularly or sometimes, but the difference was not significant; respondents who previously had done mammography had more confidence ( $p = .000$ ) and motivation ( $p = .021$ ), and perceived more benefits ( $p = .000$ ) of doing mammography than those who had never done it, and the difference was significant (Table 5).

### Relationship Between Beliefs About Breast Cancer and Screening Behaviors

Those who heard of BSE had significantly lower scores on barriers to BSE than their counterparts (mean = 14.36,  $SD = 4.02$  vs. mean = 21.73,  $SD = 4.71$ ;  $p = .002$ ). Respondents who have not heard of mammography perceived themselves to be more susceptible than those who have heard of mammography, and the difference was significant (mean = 14.43,  $SD = 2.62$ ; mean = 14.30,  $SD = 4.63$ ;  $p = .027$ ); those who have heard of mammography had significantly more confidence than those who have not, and the difference was almost significant (mean = 37.07,  $SD = 7.61$ ; mean = 33.50,  $SD = 5.40$ ;  $p = .056$ ; see Table 6).

**TABLE 6** Relationship Between Beliefs About Breast Cancer and Screening Behaviors

	Have you ever heard of BSE? Mean (SD)		<i>p</i> value
	Yes	No	
1. Susceptibility Score	13.83 (3.98)	17.45 (5.28)	.195
2. Seriousness Score	23.19 (4.58)	24.91 (5.99)	.338
3. Benefits (BSE)	22.85 (4.02)	21.72(4.71)	.355
4. Barriers (BSE)	14.36 (4.02)	21.73 (4.71)	.002
5. Confidence	37.09 (7.21)	32.45 (7.45)	.401
6. Health Motivation	27.17 (3.58)	27.91 (3.98)	.517
7. Benefits (Mammography)	24.94 (4.16)	22.64 (2.80)	.187
8. Barriers (Mammography)	14.67 (2.89)	16.00 (2.15)	.358
	Have you ever heard of Mammography? Mean (SD)		
	Yes	No	<i>p</i> value
1. Susceptibility Score	14.30 (4.63)	14.43 (2.62)	.027
2. Seriousness Score	23.39 (4.98)	23.78 (3.96)	.155
3. Benefits (BSE)	22.98 (4.22)	21.35 (3.29)	.220
4. Barriers (BSE)	14.91 (7.42)	16.78 (3.55)	.379
5. Confidence	37.07 (7.61)	33.50 (5.40)	.056
6. Health Motivation	27.53 (3.65)	26.07 (3.36)	.586
7. Benefits (Mammography)	24.81 (4.22)	23.71 (3.19)	.251
8. Barriers (Mammography)	14.65 (2.98)	15.78 (1.72)	.137

(Continued on next page)

**TABLE 6** Relationship Between Beliefs About Breast Cancer and Screening Behaviors (*Continued*)

	Have you ever done BSE? Mean ( <i>SD</i> )			<i>p</i> value
	Always	Sometimes	Never	
7. Susceptibility Score	12.92 (1.24)	13.61 (4.23)	15.22 (4.25)	.191
8. Seriousness Score	23.61 (3.48)	22.42 (5.20)	24.00 (4.89)	.532
9. Benefits (BSE)	24.38 (3.97)	22.69 (3.99)	22.17 (4.11)	.185
10. Barriers (BSE)	13.30 (3.59)	13.96 (4.57)	16.66 (8.56)	.250
11. Confidence	41.69 (8.39)	36.19 (6.32)	34.95 (7.06)	1.00
12. Health Motivation	28.15 (4.16)	27.65 (3.34)	26.76 (3.62)	.421
13. Benefits (Mammography)	26.92 (4.94)	25.00 (4.18)	23.66 (3.40)	.252
14. Barriers (Mammography)	13.61 (3.12)	14.77 (3.41)	15.29 (2.23)	.130
	Have you ever done mammography? Mean ( <i>SD</i> )			
	Last year	2 to 3 years ago	More than 3 years ago	Never
7. Susceptibility score	15.36 (6.14)	20.00 (7.07)	12.66 (2.52)	14.05 (3.89)
8. Seriousness score	26.27 (3.49)	25.00 (4.24)	18.33 (2.52)	23.12 (4.86)
9. Benefits (BSE)	24.27 (5.00)	28.00 (2.12)	22.33 (5.13)	22.26 (3.82)
10. Barriers (BSE)	13.18 (3.74)	13.50 (2.12)	13.67 (4.51)	15.72 (7.48)
11. Confidence	43.45 (6.44)	50.50 (6.36)	35.67 (2.52)	34.84 (6.57)
12. Health motivation	27.64 (3.64)	35.00 (0.00)	30.67 (2.08)	26.81 (3.98)
13. Benefits (Mammography)	27.91 (2.91)	32.50 (3.54)	26.33 (4.62)	23.73 (3.70)
14. Barriers (Mammography)	13.54 (4.41)	13.00 (5.66)	14.33 (4.50)	15.16 (2.30)

**TABLE 7** Relationship Between Awareness and Behaviors of Breast Cancer Screening ( $N = 80$ )

	Ever done BSE		<i>p</i> value
	Ever done	Never done	
Ever heard of BSE	42 (95.5%)	34 (68.0%)	.001
	Ever done mammography		<i>p</i> value
	Ever done	Never done	
Ever heard of mammography	18 (94.7%)	53 (71.6%)	.027

### Relationship Between Awareness and Behaviors of Breast Cancer Screening

Respondents who reported doing BSE always, 92.9% reported ever hearing of it. Those who reported doing BSE sometimes, 96.7% reported having heard of it before. Respondents who reported never doing BSE, 68.0% reported having heard of it, and the difference was significant ( $p = .003$ ).

Respondents who previously had done mammography were more likely to have heard of it than those who had never done it (94.7% vs. 71.6%, and the difference was significant ( $p = .027$ ; see Table 7).

## DISCUSSION

In spite of the fact that early diagnosis through regular practice of BSE and mammography has been reported to influence early treatment and to yield better survival rates (ACS, 2008a, 2008b), the results of this study indicate that the majority never performed BSE or have done a mammogram in their lifetime, although two-thirds of the respondents were above the age of 41 and had heard of BSE and mammography. Similar findings were reported in other studies as well (Champion & Menon, 1997; Foxall et al., 1998; Hoeman et al., 1996; Lu, 1995; Petro-Nustus & Mikhail, 2002; Russel et al., 2006; Savage & Clarke, 1996; Yarbrough & Braden, 2001). This finding could be due to the fact that the health committee of ARCL and the Lebanese Ministry of Public Health both conduct annual awareness campaigns during the month of October. Although targeted messages may address general issues of the intended audience, they may not address individual concerns and may be perceived as less personal (Champion et al., 2006). Knowledge alone is not sufficient to trigger practice (Petro-Nustus & Mikhail, 2002).

The low rates of BSE and mammography in this sample may be explained by cultural beliefs of the Lebanese fatalistic view of cancer. Factors contributing to low BSE and mammography performance rates, which were not studied in this sample, might be Lebanese women's belief in "fatalism" and developing breast cancer is "God's will." Reliance on God and

divinity was one of the eight core themes identified by Doumit, Abu-Saad Huijer, and Kelley (2007). Similar findings have been reported by authors in different cultures (Lu, 1995; Hoeman et al., 1996; Petro-Nustus & Mikhail, 2002).

Respondents in this sample expressed low mean scores of barriers to mammography. Cost may not have been considered as a barrier for doing mammography, since the health center of ARCL provides mammography at a very low cost, and for those women who cannot afford the cost, ARCL's social service department provides free mammography.

In this study, no significant relationship was found between respondents' sociodemographic characteristics and their screening behaviors except for age. Women 41 years and older reported significantly higher rates of ever having heard of mammography. This finding could be the result of the recent awareness campaigns organized by the ARCL for its members. Similarly, no significant relationship was found between respondents' sociodemographic characteristics and their beliefs about breast cancer except for the marital status: ever married women reported significantly lower rates of barriers to BSE and higher rates of confidence ( $p = .035$ ) and higher rates of benefits to mammography than single respondents. In contrast to other studies (Champion & Menon, 1997; Petro-Nustus & Mikhail, 2002; Savage & Clarke, 1996; Secginli & Nahcivan, 2006), these findings could be due to cultural factors that were not studied, acting as barriers for breast cancer screening. Cultural factors include emotional aspects of making decisions about health practices, individual cultural perspectives of risks, fear of cancer discovery, doctors, treatment, spirituality and religiosity, and fatalistic view of illness among others. Culture is known to influence health-seeking behaviors and health outcomes (Russell, Champion, & Perkins, 2003) and is a major determinant of preventive health practices (Russell et al., 2006).

Considering the low rate of BSE and mammography, one may argue that if people do not perceive themselves to be susceptible, they will not engage in screening behavior, in line with the HBM's propositions. Looking at the results, however, we see that susceptibility is negatively associated with the frequency of BSE. This may be explained by the fear of identifying ominous illness, which hinders screening behaviors.

The relationship between susceptibility beliefs and doing mammography does not show a consistent trend. This may be due to the fact that these women, who are mostly housewives, may depend on others to tell them to have the mammogram.

Average to high levels of seriousness, benefits of BSE and mammography, confidence, and health motivation also were reported, but they did not perceive themselves to be susceptible to breast cancer (susceptibility mean score was only 14.32). Lebanese are superstitious and prefer to ensure "heavenly" support for health problems (Adib, 2008). This fatalistic approach may prevent women from adopting preventive health behaviors. It is



therefore possible that one reason for the low perceived susceptibility in this study may be the fact that Lebanese women perceive cancer as the “will of God.”

In this study, 14 respondents answered the first two sections only: demographic characteristics and the screening behaviors of the questionnaire. When asked the reason, all of them mentioned “fear” that they were so “scared” of the susceptibility part they decided not to continue. What was more significant was that almost all of the nonrespondents to the belief section belonged to the high socioeconomic category.

### Limitations

The generalizability of the results from this study is limited because of the sampling design, the convenience sample, and the small sample size. The study was also limited by the self-administered questionnaire. There is controversy related to the use of self-reported data. Last, the sample does not represent the general population as they were members of the ARCL.

### Conclusion and Implications for Health Care Professionals

The low rates of BSE and mammography screening used by this group of women are of concern and suggest directions for future research and practice. Although low levels of barriers were perceived by this group, low levels of susceptibility also were perceived, which might have been the main reason for low levels of BSE and mammography. In addition, other factors: fatalism, fear, not being directed by a physician, as well as sociocultural beliefs, meaning of breast cancer screening, and breast cancer control might have been reasons for low levels of screening, but those factors were not investigated in this study. We recommend further research of culturally related beliefs that influence breast cancer screening behaviors and using a larger sample size. In addition, design intervention programs to increase breast cancer screening rates through a collaborative approach of an interdisciplinary team composed of community health nurses, social-behavioral scientists, physicians and others, incorporating the biological, psychological, and social domains of health.

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