

Knowledge and Practices Related to Breast Cancer Prevention in Iranian Female Population, Multi-Center Study in 2004

¹Gholamali Godazandeh, ⁴H. Khani, ³A.R. Khalilian, ²Z. Atarod, ^{5,6}A. Montazeri

¹M.A. Firozjaee, ⁵M. Ebrahimi, ⁴S. Ehteshamie, ⁴H. Tayebifard, ⁴A. Partovi and ⁴K. Rezaie Kalantari

¹Department of Surgery, ²Department of Obstetrics and Gynecology,

³Department of Epidemiology and Biostatistics, ⁴Department of Student Research Committee, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran

⁵Iranian Center for Breast Cancer, Tehran, Iran

⁶Department of Public Health, University of Glasgow, Glasgow, Scotland

Abstract: Screening and preventive programs are critical components in reduction of breast cancer morbidity and mortality. A cross-section self-administered questionnaire survey was conducted to explore the knowledge and practices of breast cancer prevention modalities among a large descendant of the Iranian traditional female society. We have collected 400 questionnaires per stratum and 2400 totally. The mean age of the respondents was 25.01 years (SD = 8.78) with a range of 15-78, 46.9% were married, 86.7% had a medium-high educational level, 23.5% were housewives, 54.2% were students and family history of breast cancer was reported by 25.8%. Knowledge about breast cancer prevention was 28.5% accep, 67.3% low and 4.2% poor in the study population. 37% of the women 20 to 40 years and 48.8% of the women older than 40 years performed Breast Self-Examination (BSE) but only 17.1% did it monthly. Approximately 13.12% felt very confident that they could examine their own breasts correctly. 82.6% of the women 20 years and older never underwent a specialist visit. Among women 40 years of age and older, approximately 65.86% underwent a specialist visit once and 47.3% had obtained mammograms in the last 2 years and 61.07% have had at least one mammograms until now. The Iranian female population needs planning health education interventions and population-based specific regular screening programs to improve cancer prevention.

Key words: Breast cancer, knowledge, practices, female, BSE, Iran

INTRODUCTION

Breast cancer is the most common site-specific cancer in women and is the leading cause of death from cancer for female 40-44 years of age (Charles *et al.*, 2005; Townsend *et al.*, 2004; Baker and Fischer, 2001). In 2003, 658800 women are estimated to be diagnosed with cancer and 270600 will die from the disease. Approximately 211300 women will be diagnosed with breast cancer (Suzanne *et al.*, 2003). Many oncologists believe that screening and early detection are critical components in the reduction of breast cancer morbidity and mortality. Although the incidence of breast cancer in developing countries is relatively low, 50% of the world's breast cancer diagnoses occur in these countries (Mitra, 1999; Pearlman, 1999) thus early detection of breast cancer by population-based screening and preventive programs

would be a potentially useful approach for controlling the disease. In Iran, there is no population-based specific regular screening and preventive programs for controlling cancer diseases and thus it seems that knowledge about risk factors (Salsali *et al.*, 2003; Mandana *et al.*, 2002; Hadi *et al.*, 2002), symptoms (Salsali *et al.*, 2003; Hadi *et al.*, 2002; Vahdaninia and Montazeri, 2004), the benefits of early cancer screening guidelines (Salsali *et al.*, 2003; Hadi *et al.*, 2002; Vahdaninia and Montazeri, 2004) and health care clinics (Sadjadian *et al.*, 2004) of cancer diseases especially breast cancer may be little in this population. Misconceptions among women about the benefits of early diagnosis and treatment have been associated with underutilization of screening services in the low-income population, poorly educated society and the elderly (Lois *et al.*, 1999). Studies have suggested that improved

knowledge and attitudes positively affect the screening behavior of women (Lois *et al.*, 1999; Suarez *et al.*, 1997; Sung *et al.*, 1997; Haji *et al.*, 2002; Jeanne *et al.*, 2002). This study reports data derived from an investigation of the knowledge and practices of breast cancer prevention among largely the descendants of the Iranian traditional female society. We also examined the association of knowledge and practices of preventive programs to age, educational level, marital status, employment status and family history of breast cancer.

MATERIALS AND METHODS

Study design: A cross-sectional descriptive study was conducted from March to November 2004 in Sari, Iran.

Participants and procedures: Participants were the Iranian female population living in southern coastwise of the Caspian sea. According to the aims of this study, they were stratified into six strata including; students of 10 High Schools, students of Mazandaran University of Medical Sciences, students of Mazandaran University of Technology, women attending the 10 Urban Health and Medical Centers, women attending the 10 Rural Health and Medical Centers, unselected females living in the City. Women who agreed to participate were given a three-page self-administered questionnaire. Those who had difficulty in reading the questionnaire were provided with assistance. Women with a known diagnosis of breast cancer were excluded from the study.

Measures: A short structured questionnaire was used to collect data. The questionnaire covered demographic information (age, educational level, marital status, employment status and family history of breast cancer), breast cancer knowledge (prevalence, risk factors, symptoms BSE, Clinical Breast-Examination (CBE) by a physician and screening mammography) and practices toward breast cancer screening programs (BSE, self efficacy of BSE, CBE, mammography). These variables have been included in other studies in compliance with the modified breast cancer screening guidelines (ACS, 1999; Baxter, 2000). The questionnaire also included other health-related items for another ongoing research study.

Breast cancer knowledge: Breast cancer knowledge was measured by asking participants to respond True, False, or Don't know to the 20 items shown in 2. The authors have attempted to assess level of knowledge about breast cancer prevention, by assignment of point (+1 = correct, -1 = error, 0 = don't know) to 20 items, with stratification of patients into 4

classes based on cumulative point score (I: accep = 11-20, II: low = 1-10, III: poor = -10-0, IV: unaccep = -20 to -11).

Breast cancer screening behaviors: To assess frequency of BSE, participants 20-40 years of age and 40 years of age and older indicated how often they examined their own breast on a 4-point scale (1 = Never, 2 = 1- 6 times per year, 3 = 1-11 times per year and 4 = Once a month or more). Participants 20 years of age and older, in compliance with CBE, were assessed by asking whether they had had a CBE in the past 24 months. Participants 40 years of age and older, in compliance with mammography, were assessed by asking whether they had a mammogram in the past 24 months and at least one mammogram until now.

Self-efficacy: Self efficacy related to BSE was assessed by the question How confident are you that you can examine your own breasts correctly? Response categories were Very, A little and Not at all.

The internal consistency of the knowledge scale: The internal consistency of the knowledge scale was calculated using cronbach's alpha ($\alpha = 0.86$) in 60 subjects (10 subjects per stratum).

Statistical analysis: Statistical evaluation was performed by using the statistical package for the social sciences (SPSS 11.0). Descriptive statistics were used to compute frequencies of responses for all demographic, knowledge and practice items. Chi-square analysis was used to test for differences in proportions between two or more groups for categorical variables. Logistic regression analyses were computed to determine the relative contributions of breast cancer knowledge and demographic items. The analysis results are reported as odd ratios with 95% confidence intervals and p values (derived from likelihood ratio statistics, which have a chi-square distribution). A p value of <0.05 was considered to be statistically significant.

RESULTS

Participant characteristics: We have collected 400 questionnaires per stratum and 2400 totally. The mean age of the respondents was 25.01 years (SD = 8.78) with a range of 15-78, 46.9% were married, 86.7% had a medium-high educational level, 23.5% were housewives, 54.2% were students and family history of breast cancer was reported by 25.8%. Table 1 shows the demographic characteristics of participants included in the present study.

Table 2 gives the percentage of participants who endorsed each breast cancer knowledge item. Most participants (87.3 and 68.8%) believed that CBE and

mammography were useful breast cancer early detection techniques and that breast cancer could be cured if detected early enough (89%). Although 69.1% were aware of BSE that should be conducted monthly, only 33.5% knew about the best time for BSE. The respondents' knowledge of prevalence, risk factors, symptoms of breast cancer was almost unsatisfactory. Knowledge about breast cancer prevention was 28.5% acceptable, 67.3% low and 4.2% poor in the study population.

Practices related to breast cancer prevention: Although 37% of women 20-40 years and 48.8% of women 40 years and older performed breast-self examination, only 17.1% of women 20 years and older did it monthly. Approximately 13.12% of women 20 years of age and older felt very confident that they could examine their own breasts correctly. 82.6% of the women 20 years and older never underwent a specialist visit in the past two years. Among women 40 years of age and older, approximately 65.86% underwent a specialist visit once and 47.3% had obtained mammograms in the last two years and 61.07% have had at least one mammograms

Table.1: Demographic characteristics of the study sample (n = 2400)

| Characteristics | No. | (%) |
|---|------------|------|
| *Age group (years) | | |
| 15-20 | 868.00 | 36.1 |
| 20-40 | 1365.00 | 56.9 |
| >40 | 167.00 | 7.0 |
| *Mean (SD) | 25.0±18.78 | |
| *Range | 15-78.00 | |
| *Marital status | | |
| Married | 1124.00 | 46.9 |
| Widowed/ Divorced | 25.00 | 1.0 |
| Never married | 1251.00 | 52.1 |
| *Educational level | | |
| Illiterate | 143.00 | 6.0 |
| Primary | 174.00 | 7.3 |
| Secondary | 977.00 | 40.7 |
| Higher education (total) | 1106.00 | 46.0 |
| (1). Medical sciences | 473.00 | 19.8 |
| (2). Engineering sciences | 633.00 | 26.2 |
| *Employment status | | |
| Housewife | 565.00 | 23.5 |
| Employed | 446.00 | 18.6 |
| Jobless | 89.00 | 3.7 |
| Student (total) | 1300.00 | 54.2 |
| (1). High school | 531.00 | 22.1 |
| (2). University of medical sciences | 330.00 | 13.8 |
| (3). University of technology | 439.00 | 18.3 |
| *Family history of breast cancer | | |
| Yes | 618.00 | 25.8 |
| No | 1782.00 | 74.2 |

Table 2: Breast cancer knowledge and percentage of items endorsed among Iranian population

| Items | Don't know No.(%) | False No.(%) | True No. (%) | Correct answer |
|---|-------------------|--------------|--------------|----------------|
| *Prevalence | 1219 (50.8) | 712 (29.7) | 469 (19.5) | 469 (19.5) |
| *Risk factors | | | | |
| Age | 216 (9.0) | 2065 (86.0) | 119 (5.0) | 2065 (86.0) |
| Eating low fat, high fiber reduced risk of breast cancer | 558 (23.2) | 180 (7.5) | 1662 (69.3) | 1662 (69.3) |
| Contacting a relative with breast cancer | 147 (6.1) | 2124 (88.5) | 129 (5.4) | 2124 (88.5) |
| If your sister, mother or aunt had breast cancer you may be at increased risk of getting it | 329 (13.7) | 667 (27.8) | 1404 (58.5) | 1404 (58.5) |
| Breast cancer can be cured if found early enough | 165 (6.8) | 100 (4.2) | 2135 (89.0) | 2135 (89.0) |
| *Symptoms | | | | |
| Green nipple discharge | 1177 (49.1) | 315 (13.1) | 908 (37.8) | 315 (13.1) |
| Painless mass | 637 (26.6) | 224 (9.3) | 1539 (64.1) | 1539 (64.1) |
| Arm swelling | 1256 (52.4) | 524 (21.8) | 620 (25.8) | 620 (25.8) |
| Milky discharge in unmarried female | 896 (37.3) | 805 (33.5) | 699 (29.2) | 805 (33.5) |
| Presence of granular knobs around the areola | 908 (37.8) | 931 (38.8) | 561 (23.4) | 931 (38.8) |
| Nipple retraction | 1604 (44.3) | 491 (20.5) | 845 (35.2) | 845 (35.2) |
| Axillary's nodes without pain | 733 (30.5) | 417 (17.0) | 1260 (52.5) | 1260 (52.5) |
| *Breast self - examination and CBE | | | | |
| Should BSE monthly after 20 years | 449 (18.7) | 293 (12.2) | 1658 (69.1) | 1658 (69.1) |
| Annual breast examination by doctor can find cancer early | 196 (8.2) | 108 (4.5) | 2096 (87.3) | 2096 (87.3) |
| The best time for BSE are the first day or the middle of the menstrual period | 898 (37.4) | 804 (33.5) | 697 (29.1) | 804 (33.5) |
| *Mammography | | | | |
| Mammogram is an x-ray of the breast | 772 (32.2) | 163 (6.8) | 1465 (61.0) | 1465 (61.0) |
| Mammogram may find breast cancer early | 653 (27.2) | 95 (4.0) | 1652 (68.8) | 1652 (68.8) |
| Annual mammogram beginning at age 50 and between ages 40-50 under the doctor's order | 891 (37.1) | 256 (10.7) | 1253 (52.2) | 1253 (52.2) |
| If there is no mass in breast palpation and the patient is asymptomatic sometimes it is essential to have a mammogram for ruling out the breast cancer with consider to the patient's age | 514 (21.4) | 256 (10.7) | 1630 (67.9) | 1630 (67.9) |

Table 3: Practices of the respondents toward breast cancer screening programs

| Variables | No. | (%) |
|--|------|-------|
| *Perceived breast cancer screening programs(a) | 1301 | 54.20 |
| * Breast self examination(b) | | |
| 1) Never | 842 | 63.00 |
| 2) 1 to 6 times per year | 223 | 16.70 |
| 3) 7 to 11 times per year | 41 | 3.10 |
| 4) Once a month or more | 231 | 17.20 |
| * Breast self examination (c) | | |
| 1) Never | 84 | 51.20 |
| 2) 1 to 6 times per year | 37 | 22.60 |
| 3) 7 to 11 times per year | 12 | 7.30 |
| 4) Once a month or more | 31 | 18.90 |
| * Self efficacy of BSE (d) | | |
| 1) Very confident | 201 | 13.12 |
| 2) A little confident | 487 | 31.78 |
| 3) Not at all | 844 | 55.09 |
| Clinical breast examination in past 2 years (d) | 267 | 17.40 |
| Clinical breast examination in past 2 years (c) | 110 | 65.86 |
| Mammography in past 2 years (c) | 79 | 47.30 |
| Mammography only one time (c) | 102 | 61.07 |

(a) : N = 2400 ; includes women 15 years and older, (b) : N = 1365 ; includes women 20 to 40 years, (c) : N = 167 ; includes women 40 years and older, (d) : N = 1532 ; includes women 20 years and older

Table 4: Multivariate logistic regression analysis for determining predictors of breast cancer knowledge

| Variable | Coefficient | Standard error | Odds ratio (95% CI) | Significance |
|-------------------------------------|-------------|----------------|---------------------|--------------|
| * Knowledge of breast cancer | | | | |
| Age | 1.215 | 0.213 | 3.36 (2.21 - 5.11) | 0.0001 |
| Marital status | 0.080 | 0.159 | 1.083 (0.79 - 1.48) | (ns) 0.6140 |
| Educational level | 1.207 | 0.162 | 3.34 (2.43 - 4.59) | 0.0001 |
| Employment status | 0.060 | 0.172 | 1.06 (0.75 - 1.48) | (ns) 0.7270 |
| Family history of breast cancer | 0.040 | 0.148 | 2.95 (2.43 - 4.59) | (ns) 0.7900 |

until now. Table 3 shows the practices of the respondents toward breast cancer screening programs.

Multivariate analyses: In order to determine the impact of cancer knowledge on the demographic items (age, educational level, marital status, employment status and family history of breast cancer) of the study participants, logistic regression analyses were tested for the 5 variables. The results were presented in Table 4. Age (OR = 3.36, 95% CI 2.21-5.11) and educational level (OR = 3.34, 95% CI 2.43 - 4.59) were found to be significant predictors of breast cancer knowledge. Chi-squared test examines the association between demographic data, family history of breast cancer and breast cancer knowledge level with BSE, self efficacy of BSE, CBE and mammography.

The practice of BSE was significantly associated with age (p<0.0001), educational level(p<0.0001), marital status (p<0.0001), employment status (p<0.0001) and breast cancer knowledge (p<0.0001) but not to family history of breast cancer (p<0.52).

Self efficacy of BSE was significantly associated with age (p<0.0001), educational level (p<0.0001), marital status (p<0.0001), employment status (p<0.0001) and breast cancer knowledge (p<0.0001) but not to family history of breast cancer (p<0.16).

The practice of CBE was significantly associated with age (p<0.0001), marital status (p<0.0001), employment status (p<0.0001), but not to educational level (p<0.193), family history of breast cancer (p<0.193) and breast cancer knowledge level (p<0.488).

The practice of mammography (past two years) was significantly associated with age (p<0.0001), marital status (p<0.0001), employment status (p<0.0001), but not to educational level (p<0.319), family history of breast cancer (p<0.167) and breast cancer knowledge level (p<0.338).

The practice of mammography (only one time) was significantly associated with age (p<0.0001), marital status (p<0.0001), employment status (p<0.0001), but not to educational level (p<0.605), family history of breast cancer (p<0.836) and breast cancer knowledge level (p<0.685).

DISCUSSION

The purpose of this study, was to explore and document knowledge and practices related to breast cancer prevention in a large descendant of the Iranian traditional female population and to examine the association of knowledge and practices of preventive programs to age, educational level, marital status,

employment status and family history of breast cancer. The result of the present study support reports suggesting that improved knowledge about breast cancer screening programs positively affect the screening behavior of women. The main findings are as follows;

Knowledge about breast cancer: Responses to knowledge-based questions indicated low levels of knowledge about cancer prevention in almost two thirds of the Iranian female population. These women may be less convinced regarding the benefits of breast cancer screening when asymptomatic. Age and educational level were found to be significant predictors of breast cancer knowledge. These indicated that women more than 20 years of age and with higher educational level were more likely to have a little knowledge about breast cancer prevention programs. This remarkable finding indicates that in spite of the increase of age and educational level, knowledge about breast cancer remains low in the Iranian female society, which is to the contrary of other studies (Lois *et al.*, 1999; Suarez *et al.*, 1997; Haji *et al.*, 2002; Rosalie *et al.*, 2002). In other words, as a result of the non existence of planning health education intervention and population-based specific regular screening programs despite the improving level of knowledge and attitudes related to breast cancer, preventive methods and early diagnosis, there still exists the some serious problem even in the high educational levels in Iran. Rosalie *et al.* (2002) in a study, showed that breast cancer education intervention for African Americans can significantly improve breast cancer screening rates (Rosalie *et al.*, 2002). Other studies have suggested that improved knowledge and attitudes positively affect the screening behavior of women. Regarding the high level of education in the Iranian female society compared to the other developing countries such as, the Middle East countries, Caucasian countries, African people and Latin America, it seems that designing and performing regular planning health education intervention in breast cancer will increase the practices and performance of screening program in breast cancer and even other cancers in the Iranian society faster than these countries.

Breast self examination: The effectiveness of BSE remains controversial. The American Cancer Society continues to recommend monthly BSE to women (ACS, 1999), but the Canadian Task Force on Prevention Health Care has announced that physicians should no longer routinely teach BSE as a screening technique for cancer to women aged 40-69 years because it can do more harm than good (Baxter, 2001). In contrast, it is argued that a significant number of women find masses when they are

bathing or dressing and BSE once a month may contribute to a woman's heightened awareness of what is normal for her (Larkin, 2001). In our study, one third of women 20- 40 years and almost 50% of women older than 40 years of age performed BSE but only 17.1% of women 20 years and older did it monthly. Approximately one tenth of women of 20 years and older felt very confident that they could examine their own breasts correctly. The practice and self efficacy of BSE was significantly associated with age, educational level, marital status, employment status and breast cancer knowledge but not to family history of breast cancer. These findings suggest that in overcoming barriers to BSE, factors such as age, marital status, employment status, educational level, breast cancer knowledge play the most important role. Although the majority of the study population had moderate to high educational level and were also in the age of performing screening programs of breast cancer, unfortunately, having little breast cancer knowledge and screening programs leads to low levels of practice in BSE and self-efficacy related to BSE in the Iranian female society (2001). This indicates the non existence of a regular screening program of breast cancer in Iran. Abdulbari *et al.* (2001) reported BSE was more commonly practiced by women who were younger, more educated and employed. Bastani *et al.* (1994) interviewed women in health professions and registered high levels of knowledge about breast cancer and willingness to undergo screening examination and a high frequency of BSE. Confidence in the effectiveness of BSE was also shown to reduce the fear aroused by the association of BSE with breast cancer. Carter *et al.* (2002) surprisingly reported that a large proportion of the sample believed cancer to be incurable and inevitably fatal, even though the sample reported a high degree of knowledge about cancer, its screening procedures and the importance of early detection. Levshin *et al.* (1998) in a study of 1500 breast cancer patients, demonstrated that 81% of women first noticed symptoms themselves. Thus one may argue that if women are finding most breast cancers themselves, it is possible that by knowing how to do a more thorough BSE they could find breast cancers of smaller sizes, which in turn may lead to an improved prognosis. Fung reported women in Hong Kong showed that only 1-16% of the respondents, claimed to practice BSE (1998) on a monthly basis. Comparing the study findings with those from Africa, for example, Nigeria (Odusanya, 2001), it was clearly suggested that there is a significant similarity between performing BSE in these countries, which are very different from that of developed once. This indicates that in addition to other factors, cultural similarities or differences may also contribute to such variation and that there is need for greater effort to

enhance BSE in developing countries. In fact, many women were pessimistic about the likely success of BSE and this reminds us that in planning educational programs two important issues should be considered: First, providing materials that show many women have detected abnormalities themselves and second, explaining the benefits that might be gained by performing BSE.

Clinical breast examination and mammography: This is the first study to assess the breast cancer screening behaviors of large descendants of the Iranian traditional female population. According to the American Cancer Society (2001), women aged 40 years and older should have CBE and mammography every year. But in our study, because of the non existence of regular screening programs and basic data in the level of knowledge, attitudes and practices related to the breast cancer in different ages of the Iranian female society, it instigates us to assess the practice of CBE in females 20 years of age and older and practices of mammography in females 40 years of age and older in order to collect data indirectly about knowledge, attitudes and practices related to CBE in females 20-40 years of age. Almost 87.3% of women in our study expressed agreement about the need to have breast examination done by a physician annually. However, in practice, 82.6% of the women 20 years and older never underwent a specialist visit in the past two years, but among women 40 years of age and older, approximately 65.86% underwent a specialist visit once in the last two years. Almost 95% of these women were visited by a physician because of other diseases and done CBE by physician recommendation. Multivariate analysis showed that the practice of CBE was significantly associated with age, marital status, employment status, but not to educational level, family history of breast cancer and breast cancer knowledge level. These findings suggest that in overcoming barriers to CBE, factors such as age, marital status and employment status play the most important part. The remarkable point in these findings is the non existence of relationship between the breast cancer knowledge and educational level of the Iranian female society with the practice of CBE which is to the contrary with other studies. Tanjasiri reported only 52% Hmong women had had a CBE, compared with the California averages of 88% (Kagawa *et al.*, 2001). Abdulbari *et al.* (2001) also reported, almost 80% of women expressed agreement about the need to have breast examination done by a physician. However, in practice, only 33% had been offered CBE and 14% had actually experienced it. Multivariate analysis showed that CBE was performed more often among younger than older women, among educated rather than uneducated women and among

employed rather than unemployed women. The number of visits per year to primary health care clinics and annual income were not independently associated with CBE (Abdulbari *et al.*, 2001).

Reduction of breast carcinoma mortality by the use of screening mammography has been documented in multiple screening trials. Reduced mortality was evident even with mammography performed in the 1960s, with a 33% decrease in breast carcinoma death rates in the Health Insurance Plan of New York study; the usefulness of mammographic screening has been demonstrated in multiple studies since then (Chu *et al.*, 1987). The advantage of mammographic screening has not been applicable to those segments of society for whom it has not been available. The diminished availability and use of mammographic screening by low income and minority populations has been documented by several authors (Lazovich *et al.*, 1991; Ballard *et al.*, 1996; Cerrotta *et al.*, 1997; Goodwin *et al.*, 1996; Mor *et al.*, 1994). Poverty, absence of health insurance and aging have been cited as important barriers. However, even when universal insurance coverage is available, women of low socioeconomic status and educated, may not take advantage of mammographic screening (30.33). Reported only 30% Hmong women had had a mammogram, compared with the California averages of 70%. Abdulbari *et al.* (2001) also reported, only 10% had experienced the mammography at least once. In our study, Most participants (68.8%) believed that mammography as a useful breast cancer early detection technique and that breast cancer could be cured if found early enough (89%). Almost 52.2% of women in our study expressed agreement about the need to have mammography done on a physician recommendation, annually. However, in practice among women 40 years of age and older, approximately 47.3% had obtained mammograms in the last two years and 61.07% have had at least one mammogram until now. The practice of mammography (past two years or only one time) was significantly associated with age, marital status, employment status, but not to educational level, family history of breast cancer and breast cancer knowledge level. Those who had had mammograms and CBE were more likely to have had them recommended by physicians but not to have had more knowledge about cancer than other Participants.

CONCLUSION

As in other studies, our study population demonstrated low knowledge of breast cancer. However, discrepancies exist between what is known about the screening procedures and what is practiced. The Iranian

female population needs planning health education interventions and population based specific regular screening programs to improve cancer prevention. Therefore we suggest these points for the reduction of breast cancer morbidity and mortality in Iran: The performing regular planning health education interventions for improving knowledge and attitude related to cancers namely breast cancer in women 15 years of age and older. The establishing and supporting of Non-Government Organizations (NGO) toward cancer education in society. The establishing of cancer clinics in any city. The performing of active screening in CBE and mammography by physicians in Rural and Urban Health and Medical Centers for women 40 years of age and older. Future researchers need to design and assess specific rather than general interventions that first provide accurate information and then explore beliefs and attitudes that might impede or facilitate turning the information into health-related behaviors.

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