

## Original Article

**Early detection of Breast Cancer among women in Mazandaran, Iran**

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**Abstract**

**Background and purpose:** After lung cancer, breast cancer, among the prevalent cancers of the world is of the most widespread disease among women. It is the most common cause of mortality among women. This study aimed to analyze the results using breast cancer screening methods among women over 20 years old.

**Materials and methods:** The present study is a cross-sectional-descriptive research. The sample volume is 1416 women over 20 years in Mazandaran province. One hundred forty one clusters of 10 families including 81 urban clusters and 60 rural clusters were determined at thought the province. The questionnaires were completed by the subjects through direct administration. The data were analyzed using SPSS (version 16) statistical software and descriptive and inferential statistical methods.

**Results:** The results show that 46% of study women had self – examination record and 14.3% of them had regular and monthly self – examination, 38% of women had breast clinical examination by a physician. And 20.7%, breast clinical examination was done regularly and annually. Fourteen percent of women had mammography record, in which only 3.5% was done at a regular time interval every 3 years.

**Conclusion:** According to the findings, women performance about the early detection of breast cancer was not satisfactory. Thus, planning and designing appropriate educational interventions within socio-cultural conditions and using health training models can lead to promoting breast cancer early detection performance among women over 20 years.

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**Key words:** Breast Cancer, Self Examination, Clinical Examination, Mammography

## 1. Introduction

Breast cancer constitutes the most frequent female malignancy worldwide, and is the second leading cause of cancer-related death in women after lung cancer (1,2). The lifelong risk of breast cancer is 12.5% (i.e. one out of eight women), and the risk of death as a result of breast cancer is one out of 28 cases (3). According to the Iranian Ministry of Health, 8424 women have been diagnosed with breast cancer in 2008, yielding an incidence rate of 24.66% per 1000 and specific incidence rate of 33.31% per 1000 (4). The World Health Organization states that breast cancer mortality may be strongly reduced through screening programs. If the prevalence of breast cancer becomes three times that of cervical cancer, it will be prioritized in screening. As breast cancer has the first rank in Iran, its screening is necessary (5). If diagnosed early, more than 90% of breast cancer patients may be cured (6). Screening is the optimal method for early diagnosis (7). Screening methods for breast cancer include breast self-examination, clinical examination by physician or healthcare workers, and mammography (1). Breast self-examination is a simple and inexpensive method and raises the awareness of individuals about breast cancer (8). Breast self-examination is a policy in public health, but is used as a preventive tool for early diagnosis in developing countries (5). Previous studies report different results regarding the rate of self-examination in Iran (9,10). Montazeri reported the rate of self-examination among Iranian women to be 17% (1), while Nigerian and Malaysian studies reported 24% and 17%, respectively (11,12). Clinical examination of breasts reveals about 60% of malignant cases. Recent studies indicate that clinical examination is 54% sensitive and 94% specific (1). The rate of clinical breast examination (CBE) in Iran ranges from 4%-20% in previous reports (13,14). It is 14.1% in Turkey (15). Mammography is among the most efficient modalities for early breast cancer diagnosis (5).

Previous studies report the rate of mammography in Iran to be 3%-6.5% (16,17) and 13.6% in Malaysia (18).

Considering the importance of a screening program in prevention and early diagnosis of breast cancer, the objective of this study is to investigate the use of screening modalities for breast cancer including self-examination, clinical examination by physician or healthcare workers, and mammography among women aged over 20 years in Mazandaran province in 2012.

## 2. Materials and Methods

This is a descriptive, cross-sectional study on 1416 women aged above 20 years in Mazandaran. The sample population was selected using the findings of a pilot study on early breast cancer diagnosis. Awareness was the main variable affecting sample selection. The participants were selected through randomized cluster sampling. Constant 10-household clusters were calculated across the 17 townships of the province and divided over the covered townships in a weighted fashion. A total of 141 10-household clusters including 81 urban clusters and 60 rural clusters were distributed over 17 townships of Mazandaran province according to the weight of the townships. The cluster heads were selected using child vaccination documents.

Data collection tool was a questionnaire with 20 questions, including 11 questions on demographic information and 9 questions dealing with the women's behavior regarding modalities of early breast cancer diagnosis, including breast self-examination, clinical examination, and mammography. The validity of the questionnaire was determined by experts through content validity.

Reliability was assessed using Cronbach’s alpha, which was found to be 0.98. Data were collected with face-to-face interviews with the households. Data analysis was completed on SPSS software version 16, using ratio and percent from descriptive statistics and chi-square test.

### 3. Results

Table 1 presents the demographic information of women in our study. The mean age of the participants was  $35.71 \pm 11.6$  years, ranging from 20 to 81 years. The most common age group was 21-30 years, holding 31.3% of participants. The smallest age group was 60 years or older, comprising only 3.2% of participants. 57.8% of women resided in cities, 42.2% resided in villages, 87% were married, 8.4% were single, 78.9% were homemakers, and 14.7% were employed. The mean years of education was  $9.46 \pm 4.6$  years, with 50% of women educated 6-12 years and 1.7% educated over 16 years.

The mean educational duration of their husbands was  $8.7 \pm 4.7$  years, with 51.6% of husbands educated 6-12 years, and 2.5% more than 16 years. 71.7% of husbands were employed. 9.5% of women had a history of breast disease, 6.1% had a history of breast cancer in first-degree relatives and 10% had it in their second-degree relatives.

**Table 1.** Demographic information of women aged above 20 years participating in our study

Information	Percent (For each group)
Age Group	61 and higher (3.2); 51-60 (8.5); 41-50 (19); 31-40 (30.8); 21-30 (31.3); below 20 (7.2)
Marital Status	Widow (3.3); divorced (1.2); married (87); single (8.4)
Education (years)	+16 (1.7); 13-16 (19.6); 6-12 (50); 2-5 (17.6); less than 1 year (11.1)
Occupation	Unemployed (0.6); student (5.2); employed (14.7); homemaker (78.9)
Spouse education	+16 (2.5); 13-16 (15.4); 6-12 (51.6); 2-5 (12.6); less than 1 year (17.9)
Residence	Rural (42.2); urban (71.7)
History of breast disease, positive family history	Breast cancer in second-degree relative (10); breast cancer in first-degree relative (6.1); breast disease in participant (9.5)

Table 2 presents the women’s behavior regarding early diagnosis. As the table depicts, 46% of women had a history of breast self-examination, 52.1% of women never performed breast self-examination, and 14.3% performed the self-examination regularly and monthly. 38% had a history of clinical examination by a physician.

No clinical examination was performed in 16.3%, and 20.7% underwent clinical examination regularly and annually. 13.7% of women had undergone mammography, 83.2% had never undergone mammography, and only 3.5% underwent mammography regularly and every three years.

**Table 2.** Behavior of breast cancer prevention in women aged above 20 years participating in our study

Questions	Percent
Has a history of breast self-examination	No (52.5); Yes (46)
Frequency of self-examination	Monthly (14.3); every six months (7.3); annually (5.2); occasionally (21)
Has a history of breast clinical examination	No (61); Yes (38.5)
Frequency of clinical examination	Annually (20.7); every two years (24.4); every three years (4.9); every 5 years or more (6.1)
Has a history of mammography	No (83.2); Yes (13.7)
Frequency of mammography	Annually (3.4); every two years (1.3); every three years (3.5); every 5 years (2.9)

The highest rate of breast self-examination (20.1%), mammography (2.8%) and breast clinical examination (21.8%) pertained to women aged 41-50 and 31-40 years, respectively. The women’s behavior regarding early breast cancer diagnosis was not significantly related to age. The highest rate of self-examination (13%) and clinical examination (21.2%) was in women with 6-12 years of education, and the highest rate of mammography (4.1%) was in women with less than 5 years of education. The women’s behavior regarding early breast cancer diagnosis was not significantly related to education. Regarding occupation, 19.2% of self-examination and 26.4% of clinical examination occurred in employed women. Although employed women were more active in this regard, the difference was not statistically significant. Regarding residence, self-

examination was performed in 12.1% of urban women and 17.4% of rural women, and clinical examination in 18.5% of urban women and 23.7% of rural women. Rural women were significantly more actively involved in self-examination and clinical examination ( $df=1$ ,  $p=0.005$ ,  $\chi^2=3.5$ ). Regarding marital status, 6.7% of single women and 15% of married women performed self-examination. The women's behavior in self-examination was significantly related to marital status ( $df=1$ ,  $p=0.013$ ,  $\chi^2=6.1$ ). Although women with employed husbands were more active, the difference was not significant. As for husbands' education, the rate of self-examination was 14.8% in women whose husbands had 6-12 years of education. In addition, the rate of mammography was 4% in women whose husbands had 13-16 years of education. Regarding the history of breast diseases, women with a history of breast disease had 20.1% self-examination, 34.3% clinical examination and 9.7% mammography. Women with a history of breast cancer in first-degree relatives had 14% self-examination, 26.7% clinical examination, and 7% mammography. The women's behavior in clinical examination and mammography was significantly related to history of breast diseases ( $p<0.001$ ). Nevertheless, their behavior was not significantly related to history of breast cancer in their first or second-degree relatives.

#### 4. Discussion

In this study, we addressed the behavior of early breast cancer diagnosis (self-examination, clinical examination, and mammography) in women aged above 20 years in Mazandaran. The findings indicate that 46% of women performed self-examination, with 14.3% of them doing it in a regular and monthly fashion. The rate of regular and monthly self-examination was reportedly 7.6% in Bushehr by Norouzi (9), 17.1% in women aged above 15 years in Sari by Godazandeh (19), 5.1% by Harirchi (10), and 8.75% in women referring to healthcare centers of Tabriz by Farshbaf (16). Montazeri reported that 17% of Iranian women performed breast self-examination (1). Parsa reported that 19% of Malaysian women

performed self-examination regularly (8). The rates were 27.7% in Turkey by Ceber (20), 17.6% in Nigeria by Olugbenga (11) and 17.4% in Yemen by Ahmad (21). The difference in rates of self-examination may reflect the differences in measurement criteria. Most studies ask women whether they perform self-examination or not, and regular and monthly examination is less emphasized. It may also be the result of small sample sizes and lack of comprehensiveness. In this study, we found statistically significant relationships between breast self-examination behavior and marital status, history of breast disease, and rural residence, which is consistent with previous reports by Godazandeh and Dadkhah regarding marital status, and Banayian and Farshbaf regarding the history of breast disease (7,16,19,22). Considering WHO's recommendation to developing countries to plan and encourage women for breast self-examination, as a means for early diagnosis of breast cancer, as well as Iran's health policies, the rate of self-examination is very low (5). According to our findings, 38% of women had a history of undergoing clinical examination, of which 20.7% performed it regularly and annually. The similar rates are 4.7% in women referring to healthcare centers of Ardabil by Salimi Pormehr (13), 19.1% in Tabriz by Farshbaf (16), 22.4% in Chalus by Ghazanfari (17), and 2.8% in women referring to hospitals of Tehran by Laluyi (14). Internationally, the rates are 24% in Nigeria by Olugbenga (11), 25% in Malaysia by Parsa (8), 14.1% in Turkey by Camo (15). In the present study, rural women, as well as those with a history of breast disease had significantly higher activity. In addition, although CBE was more common in women with higher education levels and employed women, the difference was not significant. These findings are in line with previous reports. As only about one fifth of women aged above 20 years underwent clinical breast examination, and given the critical role of CBE in early diagnosis and screening of breast cancer, the rate of CBE is very low. In this study, 13.7% of women underwent mammography, of which only 3.5% did it regularly. The respective rates are 3.3% by Farshbaf (16) and 6.5% by Ghazanfari (17). Also, the rate of mammography is reportedly 14.3% in Nigeria by Olugbenga (11),

13.6% in Malaysia by Parsa (18), and very low in Brazil by Bimer (23). We found mammography to be significantly related to only history of breast disease. Despite the fact that mammography constitutes an efficient method for early diagnosis of breast cancer in women aged above 40 years and those at risk, the rate of mammography in our study did not change with increasing age (24).

As using screening modalities contributes to early diagnosis of breast cancer and efficacious treatment in early stages reduces mortality (25), our findings do not indicate an acceptable behavior by our participants regarding early breast cancer diagnosis, including self-examination, clinical examination, and mammography. Therefore, planning and designing educational intervention proper for the cultural and social features of the community and using health education models may improve these behaviors in women age above 20 years.

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