

# Knowledge and attitude among outpatient women visiting a healthcare center in northern Iran regarding breast self-examination: a cross-sectional study

Amir Ahmadzadeh Amiri

*Sports Medicine Research Center, Neuroscience Institute,  
Tehran University of Medical Sciences, Tehran, Iran*

Mohammadreza Haghshenas

*Department of Microbiology and Medical Virology,  
Mazandaran University of Medical Sciences, Sari, Iran*

Ali Ahmadzadeh Amiri

*Sports Medicine Research Center, Neuroscience Institute,  
Tehran University of Medical Sciences, Tehran, Iran, and*

Fatemeh Daneshvar

*Department of Public Health, Mazandaran University of Medical Sciences, Sari, Iran*

## Abstract

**Purpose** – Breast cancer is one of the most prevalent malignancies worldwide. This study aimed to compare the level of knowledge and attitude of females regarding Breast cancer and to determine the role of knowledge, attitude and barriers in performing regular self-examination.

**Design/methodology/approach** – Non-physician females aged 18 years old or above were enrolled in this cross-sectional study in two groups of usual clients and healthcare staff from January 2018 to January 2019 from a healthcare center in Sari, a major city in the northern district of Iran. A questionnaire was used to score the participants' knowledge and attitude levels using questions about the participants' knowledge and attitude towards Breast cancer along with their status on Breast self-examination and barriers. Mean scores were used for statistical analysis using SPSS V25.  $p < 0.05$  was considered significant.

**Findings** – A final dataset of 279 females were collected. A significant difference in the knowledge and attitude regarding breast cancer was found between the two study groups ( $p < 0.001$ ). The practice of BSE was significantly lower in the usual clients compared to non-physician healthcare staff ( $p < 0.001$ ). The most frequent barriers for not performing a regular BSE were fear of finding a mass in usual clients (17.8%) and lack of confidence in healthcare staff (3.8%).

**Research limitations/implications** – Limitations include single-centered sample selection.

**Practical implications** – Given the importance of early detection in breast cancer prevention and the general taboo regarding breast cancer screening methods in certain parts of the world, leading to poor results in early detection and prevention, the authors believe that it is of superior importance to address and promote positive attitudes in general population towards breast self-examination.



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**Originality/value** – Given the importance of early detection in breast cancer prevention, and the general taboo regarding breast cancer screening methods in certain parts of the world, leading to poor results in early detection and prevention, the authors believe that it is of superior importance to address and promote positive attitudes in general population toward breast self-examination. The authors of this study believe that the manuscript represents honest and original work.

**Keywords** Knowledge, Breast self-examination, Breast neoplasms, Diagnostic screening programs

**Paper type** Research paper

## Introduction

Breast cancer is one of the most prevalent malignancies and is the leading cause of worldwide cancer-related mortality within the female population [1]. The rate of breast cancer survival has a wide range as it has been estimated at 80% in developed countries and below 40% in developing countries [2]. This high survival rate and a significantly lower rate of breast cancer-related mortality in developed countries such as the United States is caused by the constant improvement in clinical management and precise screening with mammography [3]. According to a recent report of the World Health Organization (WHO), the improvement in the management of breast cancer and patients' survival occurred due to the early detection of the affected individuals, as this is considered as the primary basis of the breast cancer treatment [3] and is one of the approaches that is performed for the screening of breast cancer [4].

Precise cancer screening can detect malignancy at its early and treatable stages, which leads to a reduction of the mortality rate of the affected patients [5]. Therefore, the determination of the clinical stage at the time of diagnosis is one of the most important prognostic factors and the basis of the survival estimation for patients with breast cancer.

Due to delayed detection of cancer in developing countries, higher percentages of the affected individuals are diagnosed at more progressed stages of breast cancer which leads to the late reception of the associated treatment [6]. Recently, several studies have been conducted worldwide especially in developing countries to estimate the effect of the improvement of knowledge and attitude toward breast cancer screening and its modalities on the patients' survival and the amelioration of breast cancer screening.

Research has shown that increasing awareness among the female population has led to an improvement in the survival rate of patients with breast cancer and significantly decreased the clinical stage of breast cancer at the time of diagnosis [7].

Among the effective screening methods, breast self-examination, mammography and clinical breast examination are identified as early breast cancer detection methods. The efficacy of self-examination is still under controversial debate; however, a significant association has been found in previous studies between performing regular self-examination and higher health motivation [8]. In a previous study, it was concluded that only 17% of Iranian women performed regular self-examination [9]. The results demonstrated a lower percentage compared to the studies conducted in the US concluding that 29–63% of the female population performed regular self-examination [10].

We aimed to study and compare the level of knowledge and attitude of females with different levels of baseline knowledge and experience regarding breast cancer towards the screening modalities, and to determine the role of the populations' knowledge and attitude as well as the barriers that females face in performing regular self-examination.

## Methodology

### *Study design*

This cross-sectional study was conducted between January 2018 and January 2019.

*Study population*

Females aged 18 years or above qualified for inclusion in the study. The exclusion criteria consisted of any history of breast cancer or related diseases, and education above a doctorate degree as a healthcare professional, as well as unwillingness to participate or continue participating in the study. The center at which the data was gathered was a major outpatient primary care unit in Sari, a major city in the northern district of Iran. Our study population consisted of usual female clients at the center attending to care for their children's vaccination and healthcare or their routine check-ups, along with non-physician healthcare staff at the center and the medical students who did their primary care rotations in the healthcare center. The study was explained to the participants verbally, assuring them of the confidentiality of information, and written informed consent obtained. In the cases of illiterate participants, the informed consent was verbally explained to the participant and one of their family members, after which the document was approved and signed using the participants' fingerprints.

*Sample size*

The sample size was calculated through the standard single population formula of  $n = (z_{(\alpha/2)})^2 p(1-p)/d^2$  with  $n$  being the sample size,  $z$  the standard normal deviate set at 1.96 (for 95% confidence level),  $d$  the desired degree of accuracy (0.05), and  $p$  the proportion of breast cancer screening self-examination practice at 17% found in previous studies [9]. The total sample size was calculated to be 217, and with a 10% non-response rate, the number was finalized at 239. The participants were selected through a simple randomization technique.

*Questionnaire*

All eligible participants were asked to complete a questionnaire containing the demographic data, familial history relating to the breast cancer, their hormonal medication, sources of knowledge on the topic, knowledge regarding risk factors and symptoms of breast cancer, the participants' attitude towards breast cancer and the means of screening, whether they performed regular self-examination, and the barriers to performing a regular self-examination.

The questionnaire was adapted from previous studies [11, 12], translated and modified according to the aims of this study, contained questions regarding knowledge on risk factors of breast cancer such as general risk of breast cancer in Iran, history of breast cancer in the person, and the family and genetics, breastfeeding, pregnancy age, menarche age, number of pregnancies, menopause, smoking, alcohol consumption, contraceptive use, chest radiation and high-calorie diet.

The knowledge about symptoms of breast cancer on the questionnaire included painless mass, breast nodules, sharp pain in the nipple, breast pain, discharge, bloody discharge and breast asymmetry.

For the evaluation of the attitude of the females, the questionnaire included questions about their attitude regarding the probability of the participant having breast cancer, the future chances of having breast cancer, the chance of a family member having breast cancer, the serious adverse effects of breast cancer on the body, worrying about the breast cancer, the effects of breast cancer on personal life, the value of self-examination in the breast cancer, the value of clinical examination in the diagnosis of the breast cancer, the value of mammography in the diagnosis of the breast cancer, whether they would recommend taking action for others, and the effect of breast cancer resulting in disturbances in the marital relationship.

The participants were provided with two choices regarding knowledge (20 questions) with "Not known" valued at 0 points and "Informed" valued at 1 point, and regarding the attitude

(11 questions) with two choices of “Agree” for 1 point and “Disagree” for 0 points in the final score evaluation. The education level of the participants was scored as follows: Illiterate = 0, High school = 1 and College = 2. The mean of the scores for the two groups were calculated and compared through statistical analysis.

The participants were also asked about whether they performed regular self-examination or not and the barriers to developing a regular self-examination habit. Regular breast self-examination was described as a regular and monthly inspection and manual examination of the breast conducted by the participant after the end of their menstrual cycle.

### *Statistical analyses*

The statistical analysis of the variables was completed with the SPSS statistical v.25 (SPSS Inc., Chicago, IL, USA). The qualitative variable analysis was presented using numbers and percentages, and the quantitative variables were revealed using mean and standard deviations. Descriptive and analytical statistics were used to analyze the distribution of the frequencies of variables. The  $p$ -value of  $<0.05$  was considered significant.

### **Ethical approval**

This study was initiated after obtaining the ethical approval of the medical ethics committee of Mazandaran University of Medical Sciences (code: IR.MAZUMS.REC.1398.897).

### **Results**

A total of 280 females were enrolled in the study. Only one participant dropped out of the study due to an incomplete questionnaire. A final dataset of 279 participants (174 usual clients and 105 healthcare staff) was obtained for statistical analysis. The mean age of the candidates was 31.63 years ( $\pm 8.5$ ) with a range of 18 to 58 years. The demographic data of the participants shown in [Table 1](#) along with the participants' data regarding their family history of breast cancer, hormonal medication use, and source of information.

As demonstrated, magazines and newspapers, social media, and healthcare physicians were proven to be the top 3 effective sources of information among the usual healthcare clients. In the healthcare staff group, the top 3 sources of information were magazines and newspapers, healthcare physicians, and radio/TV.

[Figure 1](#) demonstrates the mean score for knowledge and attitude compared between the two groups. The non-physician healthcare staff possessed significantly higher levels of both knowledge and attitude compared to the usual clients ( $p < 0.001$ ).

Out of 279 participants, 92 (33%) stated that they did not perform regular breast self-examinations. A statistically significant difference was observed between the two study groups regarding the action taken on regular BSE, with 78 out of 174 usual clients (44.8%) and 14 out of 105 healthcare staff (13.3%) not performing BSE regularly ( $p < 0.001$ ).

[Table 2](#) presents the main barriers that females face regarding conducting regular BSE are demonstrated and compared between the two groups. Fear of finding a mass was the barrier with the greatest frequency in both the total study population (12.2%) and the usual client group (17.8%) and lack of confidence was the barrier with the highest frequency in the non-physician healthcare staff group (3.8%).

[Table 3](#), along with the statistically significant difference between the knowledge, attitude and the level of education between two groups, a statistically significant difference was also

observed only in the level of attitude between the females who performed and did not perform regular BSE in the usual clients' group ( $p = 0.006$ ).

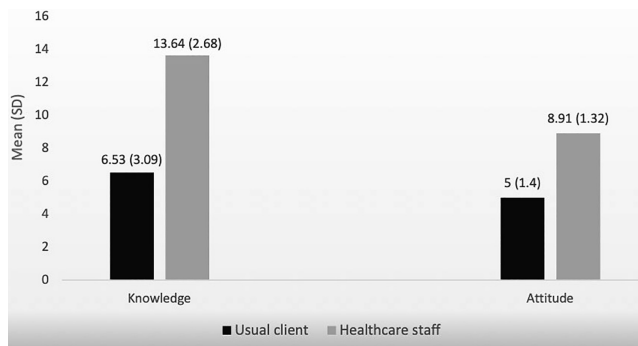
**Discussion**

Knowledge about breast cancer risk factors, symptoms and means of screening along with a positive attitude towards the simplest method of screening such as BSE plays a decisive role

| Study groups                             | Usual clients $n = 174$ (%) | Healthcare staff $n = 105$ (%) | $p$ -value |
|--|-----------------------------|--------------------------------|------------|
| Age                                      | 33.49 ± 8.24                | 28.54 ± 8.05                   | <0.001     |
| <i>Marriage</i>                          |                             |                                |            |
| Single                                   | 22 (12.6)                   | 61 (58.1)                      | <0.001     |
| Married                                  | 146 (83.9)                  | 44 (41.9)                      |            |
| Divorced                                 | 3 (1.7)                     | 0 (0)                          |            |
| Widowed                                  | 3 (1.7)                     | 0 (0)                          |            |
| <i>Education</i>                         |                             |                                |            |
| Illiterate                               | 5 (2.9)                     | 0 (0)                          | <0.001     |
| High school                              | 39 (22.4)                   | 2 (1.9)                        |            |
| College                                  | 130 (74.7)                  | 103 (98.1)                     |            |
| <i>Familial history of breast cancer</i> |                             |                                |            |
| None                                     | 170 (97.7)                  | 101 (96.2)                     | 0.350      |
| Close relatives                          | 4 (2.3)                     | 4 (3.8)                        |            |
| <i>Hormonal medication</i>               |                             |                                |            |
| None                                     | 136 (78.2)                  | 91 (86.7)                      | 0.316      |
| Contraceptive tab                        | 24 (13.8)                   | 8 (7.6)                        |            |
| Contraceptive amp                        | 3 (1.7)                     | 2 (1.9)                        |            |
| Steroid                                  | 11 (6.3)                    | 4 (3.8)                        |            |
| <i>Source of knowledge</i>               |                             |                                |            |
| Radio/TV                                 | 2 (1.1)                     | 18 (17.1)                      | <0.001     |
| Newspaper/Magazine                       | 87 (50)                     | 37 (35.2)                      |            |
| Friends                                  | 9 (5.2)                     | 11 (10.5)                      |            |
| Healthcare physician                     | 31 (17.8)                   | 27 (25.7)                      |            |
| Social media                             | 45 (25.9)                   | 12 (11.4)                      |            |

**Table 1.**  
Demographic characteristics of the study groups

**Note(s):** Italic refers to the main question that was posed, which are followed by the answers in normal writing and values in front of them



**Figure 1.**  
Knowledge and attitude scores in study groups

in early detection and mortality reduction in breast cancer. The rate of BSE in our study population was found to be 67%, with 86.7% in healthcare staff and 55.2% amongst the client group. This is significantly higher than previous studies conducted in Iran (17%) [9] and other countries (ranging from 17–35%) [11, 13–16]. This difference can be due to a more aware and higher health-motivated study population of females with regular and constant check-up visits to physicians in our study compared to other studies. However, this is compatible with the results of a study reported by Heena *et al.* [12] with a 75% rate of BSE practice in healthcare professionals.

The results revealed a significant difference between the usual hospital clients and non-physician healthcare workers in both the level of knowledge and attitude regarding breast cancer.

The practice of self-examination was also significantly higher among the healthcare staff compared to the usual clients. The efficacy of BSE is yet to be proven and is under debate, however, BSE can act as an indication of female’s healthcare awareness and motivation. A study in Saudi Arabia revealed that despite breast cancer screening tests being free of charge, low levels of activity can be an indication of low levels of knowledge and attitude regarding the dangers of breast cancer [17]. Our finding is compatible with similar studies by Dibisa *et al.* [18] in revealing the importance of knowledge regarding the action taken on breast cancer screenings.

The top two reasons which were considered as barriers for self-examination were the lack of confidence and fear of finding a mass in both groups. It can be concluded that in order to improve the female population’s health, a change in the attitude on a personal level can be of a higher priority compared to socio-economic factors. In another study in Malaysia, it was

**Table 2.** Barriers regarding conducting regular BSE in the study groups

| Barriers                            | Total <i>n</i> = 279 (%) |            | Study groups                     |            |                                     |            |
|-------------------------------------|--------------------------|------------|----------------------------------|------------|-------------------------------------|------------|
|                                     |                          |            | Usual clients <i>n</i> = 174 (%) |            | Healthcare staff <i>n</i> = 105 (%) |            |
|                                     | Yes                      | No         | Yes                              | No         | Yes                                 | No         |
| Not confident                       | 25 (8.9)                 | 254 (91.1) | 21 (12.1)                        | 153 (87.9) | 4 (3.8)                             | 101 (96.2) |
| Fear of finding mass                | 34 (12.2)                | 245 (87.8) | 31 (17.8)                        | 143 (82.2) | 3 (2.9)                             | 102 (97.1) |
| Forgets                             | 6 (2.2)                  | 273 (97.8) | 6 (3.4)                          | 168 (96.6) | 0 (0)                               | 105 (100)  |
| Time-consuming                      | 4 (1.4)                  | 275 (98.6) | 1 (0.6)                          | 173 (99.4) | 3 (2.8)                             | 102 (97.2) |
| Sufficiency of clinical examination | 12 (4.3)                 | 267 (95.7) | 10 (5.7)                         | 164 (94.3) | 2 (1.9)                             | 103 (98.1) |
| Sufficiency of mammography          | 11 (3.9)                 | 268 (96.1) | 9 (5.2)                          | 165 (94.8) | 2 (1.9)                             | 103 (98.1) |

**Table 3.** The relationship between action taken on BSE and knowledge and attitude scores as well as education level

| Parameters      | Usual clients <i>n</i> = 174 (%) |                  |                  | Study groups Healthcare staff <i>n</i> = 105(%) |                  |                  | Between-group <i>p</i> -value |
|-----------------|----------------------------------|------------------|------------------|---|------------------|------------------|-------------------------------|
|                 | Did BSE <i>n</i> = 96(%)         | Did not BSE      |                  | Did BSE <i>n</i> = 91(%)                        | Did not BSE      |                  |                               |
|                 |                                  | <i>n</i> = 78(%) | <i>p</i> -value* |   | <i>n</i> = 14(%) | <i>p</i> -value* |                               |
| Knowledge       | 6.65 ± 3.21                      | 6.4 ± 2.956      | 0.600            | 13.61 ± 2.73                                    | 13.86 ± 2.44     | 0.755            | <0.001                        |
| Attitude        | 5.26 ± 1.42                      | 4.68 ± 1.32      | 0.006            | 8.97 ± 1.34                                     | 8.57 ± 1.22      | 0.300            | <0.001                        |
| Education level | 1.75 ± 0.48                      | 1.68 ± 0.55      | 0.373            | 1.99 ± 0.1                                      | 1.93 ± 0.27      | 0.126            | <0.001                        |

**Note(s):** \**p*-value is calculated within groups

Italic signifies the significant *p*-values from insignificant ones, which represent a statistically significant difference

revealed that self-efficacy plays a positive predictive role in BSE performance [19]. Another study in KSA revealed that fear of consequences was one of the top barriers regarding breast cancer screening [20].

Even though the usual client population demonstrated lower levels of knowledge and attitude towards breast cancer as well as a large proportion of females not performing regular BSE, the level of knowledge did not differ within each study group between the females who performed and did not perform regular BSE. However, females in the usual client group who did not perform regular BSE demonstrated lower levels of attitude regarding breast cancer. This may indicate the importance of attitude in the female population's decision to participate in breast cancer screening. Thus, improved information distribution through effective sources of information with a focus on raising awareness to change the attitude towards breast cancer risks can be effective.

The results of this study show that newspapers and magazines, social media, physicians, and Radio/TV are among the most effective sources of information for females. Another study by Abay *et al.* [21] has also revealed that TV, physicians and radio are the predominant sources of information.

#### *Limitation of this study*

A qualitative estimation of the variables through a checklist can limit the answers of the candidates and create bias. Also, having conducted the study at a single center might have limited our population's diversity. Therefore, we suggest that a wide prospective study with the quantitative measurements of the knowledge, attitude and action of females regarding breast cancer screening in the future can be an effective step for the progression of the study.

#### **Conclusion**

We found the important role of knowledge and attitude toward breast cancer screening to be a key factor in the early detection of breast cancer. This study concludes that effective means of information such as newspapers, magazines, social media and physicians can be utilized with a focus on improvement in attitudes among the general population that can potentially lead to an increase in the population's health motivation.

Conflicts of Interest: None

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### Corresponding author

Fatemeh Daneshvar can be contacted at: [daneshvar.f67@gmail.com](mailto:daneshvar.f67@gmail.com)

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