Status of Breast Self-Examination Performance among Women Referring to Health Centers of Tabriz, Iran

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Abstract

Objective: Breast cancer is the most common type of cancer and the second principal cause of deaths from cancer in women. Breast self-examination (BSE) is an inexpensive screening method and is carried out by women themselves. The purpose of this study was to examine the status of breast self-examination performance among women referring to health centers of Tabriz, Iran.

Materials and Methods: This study was a descriptive/ cross-sectional research carried out on 400 women aged 20-50 years. The samples were recruited randomly from among female clients of health centers in Tabriz. A questionnaire and an observational checklist were used to elicit socio-demographic information and status of BSE performance among women. Content validity was used for validation and Cronbach's alpha was calculated (0.80) for reliability of instrument. Descriptive and inferential statistics were used to analyze data through SPSS software.

Results: The findings of this research showed that only 18.8% of women performed BSE. Among them, 46.67% performed BSE monthly, and 40% at the end of menstruation. The initiation age of BSE in 77% was between 21-30 years of age. It is considerable that 54.7% of them had received no advice on BSE from physicians and midwives. The majority of women did not perform the various steps of BSE. The quality of this screening was very desirable in 2 (0.5 %), desirable in 5 (1.3%), average in 19 (4.8%), undesirable in 36 (9%), and very undesirable in 338 (84.5%) women. Chi-square test showed a significant relationship between the quality of BSE performance and level of education, employment, breastfeeding quality, and family history of breast cancer ($P < 0.05$).

Conclusion: The findings showed that the status of BSE performance was very poor. Therefore, to encourage women to use BSE correctly and regularly, education programs should be performed through various media including television, radio, and leaflets. The role of Health personnel in this field is very important.

Keywords: Breast Cancer, Breast Self-Examination (BSE), Screening

Introduction

Breast cancer is one of the most common types of cancer in women in both developed and developing countries (1). It is also one of the most common malignancies among women (2). Breast cancer is the cause of a significant percentage (17%) of deaths from cancers and is the second leading cause of cancer death after lung cancer (3-6). In the United States, approximately 180,000 new cases of breast cancer are diagnosed yearly (7). Increasing awareness of the signs and symptoms of breast cancer and mammography has caused this cancer to be diagnosed at an early stage (8). Unfortunately, in developing countries, women's lack of awareness

about breast cancer screening can cause illness and mortality (9). Risk of breast cancer has an almost linear plot and increases with increasing age. Approximately 75-80% of breast cancers are diagnosed in women older than 50 years (4). Breast cancer in Iran occurs 10 years younger than other countries (10). A new study conducted in Iran has shown that the highest incidence of breast cancer in Iranian women was in ages 40-49 years. The incidence of breast cancer in Iran was reported 22 per 100,000, with an incidence of 120 per 100,000 women of 15-84 years of age. Moreover, 18% of women diagnosed with breast cancer were in the first stage of the disease, 57% in the second stage, and 25% in the third stage (2). Global statistics show an increase in the incidence of breast cancer. Its incidence is also increasing rapidly in developing countries, which has had a low rate of breast cancer until today (6).

The prognosis and treatment of breast cancer is associated with the stage of the disease in which it is diagnosed (11). Early detection is fundamental in the reduction of mortality from breast cancer. Efforts for early detection of breast cancer lead to the creation of programs for screening and the discovery of the disease in its early stages. Studies show that the rate of deaths in women participating in breast cancer screening reduced to 40% (12,13). Educating the public about the need for early detection of breast cancer through screening is important (14). Particularly, in developing countries where people do not have adequate knowledge of the methods of screening and diagnosis of breast cancer, the fundamental role of public health education and awareness should be emphasized (15). Self-examination, mammography and clinical breast examination are the most effective means of early detection (14). Currently, routine mammography, in developing countries, is not advisable for economic reasons and lack of accurate information. Breast self-examination (BSE), unlike clinical breast examination and mammography, is performed by the patients themselves (6). The importance of breast self-examination is due to the fact that about 95% of breast cancers are self-discovered before random or previously planned program detection (11). There is a positive relationship between performing BSE and early detection of breast cancer; the majority of early detections of breast cancer occur due to self-examination (6). Therefore, breast self-examination is the easiest and cheapest way to identify the disease at an early stage and for those who do not have adequate access to health care is the only way to screen for breast cancer (11). By learning the correct technique for breast examination, breast masses as small as 1 cm are detectable by the patient. BSE is a very simple method and it only requires 15-20 minutes to perform every month. From the age of 20 onwards, every woman should examine their breasts at the end of their period (approximately seven days).

Pregnant and postmenopausal women each month at a given date, lactating women after full discharge of milk, and women who have had breast prostheses, like other women, should perform breast self-examination monthly (16). The efficacy of breast self-examination in the diagnosis of breast cancer, in addition to the time and sequence, largely depends on the accuracy of self-examination (17).

Midwives are the best people who can effectively teach women about breast cancer prevention methods (11). Despite the importance of breast cancer and the education programs that have been performed, still low rates of screening tests are performed by women. The results of a pilot study conducted on 200 women who referred to health centers in Tabriz, Iran, showed that 69% of the subjects had not used any method of screening. Despite many studies on self-examination and other forms of breast cancer screening in Iran, breast cancer is currently a public health problem and of the research priorities. However, what is actually evident in the health system is the lack of personnel to train mothers in this field. Research suggests that in Iran the knowledge and practice of breast self-examination is low (5,18). In this study, in addition to investigating the current situation and reflecting the results to senior health administrators, it was tried to carefully examine the appropriate self-examination method and implementing its various stages, and to identify the relationship of individual and social factors and risk factors with self-examination, in order to develop strategies to be helpful in this regard. Thus, the aim of this research was to assess the status of BSE in women who referred to health centers of Tabriz in 2008.

Materials and Methods

This was a cross-sectional study, in which performance during breast self-examination and its influencing factors in women referring to health centers in Tabriz were studied. The study population included all women who referred to health centers of Tabriz. The study subjects consisted of 400 women aged 20-50 years who refered to health centers of Tabriz for healthcare services, had health records, and had the ability and willingness to participate in the study. The sample size of 400 was estimated using the following formula. In addition, given that in national and international studies, as well as different methods of screening there were different values of P, the ratio of 50% was used in this formula.

$$N = z^2pq / d^2 = 1.96 * 1.96 * 0.5 * 0.5 / 0.0025 = 384.16 = 400$$

Random cluster sampling was conducted. In the first phase, 15 medical centers or health centers were randomly selected. In the next phase, from each center, 25-30 records were randomly selected and examined. After a phone call to women aged 20-50 years who had the mentioned records, an

explanation of the study was given to them and they were invited on a specific day.

Data gathering tool of this study was a questionnaire and an observation checklist set by the researcher. To achieve the goal of this study, based on information from books, articles, and studies of the professionals, and according to the guidelines of the Ministry of Health and Okobia et al. (6), the questionnaire which consisted of 17 questions on demographic characteristics of the individuals and 8 items with different spectrum based on breast cancer screening procedures and factors affecting or not affecting it was prepared. For the observation checklist, according to the guidelines of the Ministry of Health, 22 practical options were used to review the accurate performance of BSE. The options were ticked if used, and the scores of this part ranged from 0 to 22. The results were determined as very good (score: 19-22), good (score: 15-18), medium (score: 9-14), poor (score: 5-8), and very poor (score: 0-4) (4). Based on the guidelines of the Ministry of Health for breast examination, a person must stand in front of the mirror and observe her breasts from front, left, and right, and pay attention to the size, shape, color, and overall appearance of the nipple according to the following modes: arms on both sides of the body, overhead, at shoulder level, pressing both hands firmly together and contraction of the chest muscles, hands on hips and shoulders rolled inwards, bent and hands on the knees with the breasts hanging, and hands straight up on either side of the head. After this step, the breasts should be touched to examine any lumps or possible mass. To do this, the individual must lie on the floor, a small pillow should be placed on the examined breast, the arm of the same side should be placed under the head, and with the other hand the breast should be examined. Examination of the breasts should be done with the fingertips of the index, middle, and ring figures. This should be performed in three steps: surface touching, touch with slight pressure, and touch with high pressure. When touching, the fingers should have a slightly rotating motion on the skin. It should start at the armpits, in a circular motion, examining the entire breast. Finally, the nipple should be squeezed and in case of any abnormal nipple discharge, a doctor should be consulted immediately. Touching the armpits and the breasts can also be performed in the shower, since the hands can move more easily on the body (19).

Scientific validity of the study tool was measured by content validity, and its reliability was based on the alpha coefficient (r = 0.80). Before determining the reliability, during a meeting with simultaneous presence of two observers, who were midwives, they were trained on the objectives of the study, its performance methods, and completing the questionnaire and checklists. For the reliability of the checklist, simultaneous observation was performed; two observers simultaneously observed 10 subjects, and the correlation was calculated at 0.90.

The questionnaires were given to the participants by two observers at an appropriate place, after explaining the goals of the study, and were completed. Ethical consent forms were presented and explained to the subjects before collecting data. Written consent forms were obtained from the subjects and the voluntary nature of their participation in the study and data confidentiality was emphasized. If the subjects were unwilling and were dissatisfied they were excluded from the study. In the case of illiterate subjects, the questionnaire was completed by the researcher. The checklist was completed by the researcher with consideration of privacy in a quiet room during the observation of self-examination. Descriptive statistics were used to examine the frequency and mean of the data. Moreover, chi-square test and Fisher's exact test were used to assess the quality of the relationship of self-examination and personal and social characteristics. Information obtained was analyzed by SPSS for Windows (version 13, SPSS Inc. Chicago, IL, USA).

The permission to carry out the research was obtained through the Research Deputy of Tabriz University of Medical Sciences, the Deputy of Health, and authorities of health centers. This study was approved by the ethics committee of Tabriz University of Medical Sciences.

Results

The study results showed that the mean age of the participants was 30.1 ± 7.4. Furthermore, age at first menstrual period was an average of 13.92 ± 1.45 years, mean age of marriage was 19.17 ± 1.5, and mean age at first pregnancy was 21.2 ± 3.7. The majority of subjects (97.8%) were married and their highest level of education (35.5%) was high school. The lowest percent (6.8%) belonged to subjects who were illiterate. The majority of subjects (88.5%) were housewives and their family income was sufficient and relatively sufficient in their own view (67.5% of the women). Most of the subjects (48.9%) had more than one child. The most used contraception methods were IUD (27.8%), tablets (21.1%), and condoms (15.5%). In addition, 88.5% of subjects were breastfeeding their child themselves and their breastfeeding was exclusive (78.53%).

Regarding their family history, 3.3% of subjects had the history of cancer in their first and second grade family. Only 1% of the subjects had a history of benign breast disease and 1% had a history of ovarian and colon tumors. According to the information presented in table 1, of the 400 participants in the study, 75 (18.8%) performed breast self-examination. Among the participants who performed self-examination, 35 (46.67%) performed it monthly. Regarding the time of self-examination, 30 women (40%) performed it at the end of their menstruation. The age of onset of breast self-examination in 57 patients (77%) was between 21-30 years. Interestingly, 41 women (54.7%) reported that they were not advised by their doctors or

midwives to perform self-examination, and the other 34 women, were mostly recommended by gynecologists or midwives to perform breast self-examination.

Table 2 shows that based on the BSE observation checklist, generally, a small percentage of the subjects performed the test themselves. The most performed examination (19.8%) was regarding point 2 (observing both breasts based on form and similarity). Unfortunately, only 1% of the women performed point 8 (placing hands behind the body for observation) and point 12 (in the supine position placing a pillow under the breast and checking it).

The results obtained from the BSE checklist showed the quality of screening (BSE) in 2 cases (0.5%) was very good, in 5 patients (1.3%) was good, in 19 patients it was (4.8%) medium, in 36 patients (9%) was poor, and in 338 cases (84.5%) was very poor. Moreover, in people performing self-examination, the quality of BSE in 2 people (2.7%) was very good, in 5 people (6.7%) was good, in 16 people (21.3%) medium, in 35 people (46.7%) was poor, and in 17 people (22.7%) very poor. The quality of self-examination in people performing self-examination was significantly higher than non-performing women (P < 0.05).

Table 1. Performance of breast self-examination (BSE); intervals, age at onset, and recommendation for self-examination

Variable		n (%)
Breast self-examination (BSE) performance	Yes	75 (18.80)
	No	325 (81.20)
Intervals	Monthly	35 (46.67)
	Every 2 months	11 (14.67)
	3-4 times a year	19 (25.33)
	1-2 times a year	2 (2.67)
	Few times a year	8 (10.67)
Time of performance	Onset of menstruation	10 (13.33)
	End of menstruation	30 (40.00)
	Between menstruation	2 (2.67)
	Other	33 (44.00)
Onset of self-examination	20 years	7 (23.00)
	21-30 years	57 (77.00)
Recommendation for self-examination	Yes	34 (45.30)
	No	41 (54.70)
Person recommending	General physician	4 (11.77)
	Obstetricians	19 (55.88)
	Internist	2 (5.88)
	Midwife	9 (26.47)
Total		34 (100)

Table 2. The distribution of the participants according to the procedures of BSE using the observational checklist

Row	Options	Yes n (%)	No n (%)
1	For BSE, standing in front of a mirror observation was used	46 (11.5)	354 (88.5)
2	For BSE, observing both breasts and comparing them regarding form and similarity	79 (19.8)	321 (80.2)
3	For BSE, observing both breasts and comparing them regarding size and appearance	80 (20.0)	380 (80.0)
4	Attention to depression and sore nipples	75 (18.8)	325 (81.2)
5	To observe, the hands are placed on the sides of the body	24 (6.0)	376 (94.0)
6	To observe, the hands are held upwards	19 (4.8)	381 (95.2)
7	To observe, the hands are behind the head	8 (2.0)	392 (98.0)
8	To observe, the hands are behind the body	4 (1.0)	396 (99.0)
9	Performed all the four mentioned forms	6 (1.5)	394 (98.5)
10	Feeling the breast for self-examination	73 (18.3)	327 (81.7)
11	Feeling the breast while in supine position	24 (6.0)	376 (94.0)
12	While in supine position, placing a pillow under the tested breast	4 (1.0)	396 (99.0)
13	While in supine position, placing the hand under the head of the side being examined	7 (1.8)	393 (98.2)
14	To examine the breasts, finger tips are used	53 (13.3)	347 (86.7)
15	Examining the breast with rotational movement of the fingers	48 (12.0)	352 (88.0)
16	Examining the breast with linear movement of the fingers	12 (3.0)	288 (97.0)
17	Examining the breast with radial movement of the fingers	12 (3.0)	288 (97.0)
18	Perform all the above options	9 (2.3)	391 (97.7)
19	Paying attention to the upper outer quadrant of the breast (the armpit)	21 (5.3)	279 (94.7)
20	Pressing the nipple for any lump and blood discharge	24 (6.0)	276 (94.0)
21	Paying attention to the axillary lymph nodes	21 (5.3)	279 (94.7)
22	Paying attention to the Supraclavicular lymph node area	9 (2.3)	391 (97.7)

Table 3. The relationship between the demographic data of the subject and the quality of breast self-examination

Variables		Quality of breast self-examination				Statistical tests	
		Poor [n(%)]	Medium [n(%)]	Good [n (%)]	Total	Without merging	After merging medium and good
Education level	Illiterate	27 (100)	0	0	27 (100)		
	Primary	116 (99.1)	1 (0.9)	0 (0.0)	117 (100)		
	Secondary	77 (97.5)	1 (1.3)	1 (1.3)	79 (100)	$P < 0.001$	$P < 0.001$
	High school	130 (91.5)	10 (7.0)	2 (1.4)	142 (100)	$X^2 = 51.792$	$X^2 = 48.227$
	University	23 (67.6)	7 (20.6)	4 (11.8)	34 (100)		
	Total	373 (93.4)	19 (4.8)	7 (1.8)	399 (100)		
Occupation	Housewife	337 (95.2)	14 (4.0)	3 (0.8)	354 (100)		
	Working from home	17 (100.0)	0 (0.0)	0 (0.0)	17 (100)	$P < 0.001$	$P < 0.001$
	Working outside home	19 (70.4)	5 (18.5)	3 (11.1)	27 (100)	$X^2 = 31.516$	$X^2 = 27.458$
	Total	373 (93.7)	19 (4.8)	6 (1.5)	398 (100)		
Quality of breast feeding	Exclusive	267 (96.0)	8 (2.9)	3 (1.1)	278 (100)	$P = 0.006$	$P = 0.001$
	Nonexclusive	61 (85.9)	7 (9.9)	3 (4.2)	71 (100)	$X^2 = 4.937$	$X^2 = 10.258$
	Total	328 (94.0)	15 (4.3)	6 (1.7)	349 (100)		
Family history of breast cancer	Yes	10 (76.9)	3 (23.1)	0 (0.0)	13 (100)	$P = 0.006$	$P = 0.014$
	No	364 (94.1)	16 (4.1)	7 (1.8)	387 (100)	$X^2 = 16.148$	Fisher's Exact
	Total	374 (93.5)	19 (4.8)	7 (1.8)	400 (100)		Test = 6.075

The information in table 3 in terms of the relationship between some of the social-demographic characteristics and BSE quality using the chi-square test showed that the quality of BSE has a statistically significant correlation with employment status, quality of breastfeeding, and family history of breast cancer ($P < 0.05$). Therefore, in academics, and those working outside the home, whose breastfeeding was not exclusive, and had a family history of breast cancer, the quality of BSE was higher than others. However, this better quality was relative, and not desirable. No statistically significant relationship existed among the quality of BSE, and age, number of children, breastfeeding history, history of benign breast disease, income, and marital status.

Discussion

In this study, women's performance of self-examination was poor (18.8%). In the study by Okobia et al. in Nigeria it was found that 34.9% of the subjects performed breast self-examination (6), and in the study by Mahouri et al. in Shiraz 28.3% of the women performed self-examination (4). Nevertheless, in the study by Frisell et al. in developed countries, most women performed all three methods of breast cancer screening (20). These results show the lack of training in Iran.

In the present study, 46.67% of those who performed self-examination performed the examination monthly. In the study by Baradaran Rezaei, 72.1% of the participants performed BSE monthly (15). In the questionnaire used for this study, the options every 2 months and every 3-4 months also existed, but in the study by Baradaran Rezaei these options did not exist, which can be the reason of the differences between the two studies (15). In the study by Chong et al., 67.2% of the participants attempted to perform monthly breast self-examination (14).

In terms of the time of self-examination in this study, 40% of women performing self-examination

engaged in it upon the end of their menstruation. In the study by Mahouri et al., 11% of the participants performed the examination at the right time and at appropriate intervals (4). About 45.3% of the people that performed self-examination had received recommendations for self-testing, and the majority of them were advised by gynecologists and midwives. In the study by Baradaran Rezaei, 38.5% of the women were advised mostly by their doctors to perform self-examination (15). One of the roles of midwives is to encourage all women to perform breast self-examination and follow screening recommendations (11).

The quality of BSE in 1.8% of the women was very good and good and the techniques were correctly conducted. Self-examination techniques were not assessed in previous studies, but Mahouri et al. concluded from all the screening methods that only 1% of the study subjects performed all necessary measures in breast screening correctly and completely (4).

According to the BSE checklist, in general, a small percentage of the subjects performed the self-examination. The most performed option (19.8%) was option number 2 (observing both breasts based on form and similarity). Unfortunately, only 1% of the women performed point 8 (placing hands behind the body for observation) and point 12 (in the supine position placing a pillow under the breast and checking it). In a similar study, 89% of the nurses in Lagos, Nigeria, performed BSE, but the majority of the participants did not know the correct technique and time for the examination (21). In Iran, no study was conducted in detail in this regard. Moreover, the results showed that the quality of BSE had a significant relationship with self-examination, and the women performing it had a higher quality of performance; this was probably due to the high level of awareness among these people.

In this study, the education level had a significant

relationship with the quality of BSE; academic people had better performances. The results of the study by Okobia et al. (6) and Yucel et al. (22) also indicated that BSE was significantly associated with higher levels of education. It seemed that higher education level with increased awareness improved the quality of self-examination.

In this study, occupation had a significant relationship with the quality of BSE, and those who were employees had a better performance. In the study by Okobia et al., the kind of occupation had a significant relationship with BSE performance. Moreover, people employed in occupations such as teaching and nursing had a better performance than others (6). The better performance of those working outdoors was probably due to having more social relations especially with colleagues and as a result increased awareness.

There is an indirect relationship between breastfeeding and the quality of BSE. Women who did not breastfeed their children, and women who were not exclusively breastfeeding, performed better breast self-examination. This finding was in agreement with with that of the study by Rutledge et al. in which BSE was associated with increased risk of breast cancer (12). Perhaps due to lower risk of breast cancer in breastfeeding mothers, the desire for screening in these women decreased.

In this study, family history of breast cancer was significantly associated with breast self-examination; women with a family history of breast cancer had better performance, which corresponded with the results of other studies (4,12,22). This was probably because these women felt at risk and they became more sensitive to the issue.

In the present study, there was no statistically significant relationship among age, number of children, history of breastfeeding, history of benign breast disease, marital status, income, and the quality of breast self-examination. In the studies by Mahouri et al. (4) and Okobia et al. (6), there was also no relationship between age and BSE. However, some studies have found an inverse relationship between age and breast self-examination (4,22). Furthermore, the results of various studies suggested that a prior history of breast disease has a significant relationship with breast self-examination (4,12,22). The results of the study by Yucel et al. showed that higher income levels were associated with breast cancer screening (22). This finding was not consistent with that of the present study. Moreover, in the study of Okobia et al., there was no relationship between BSE and marital status (6). However, in another study, a relationship was found between marital status and breast self-examination (23).

Since the present study was a quantitative study, the limitation of the study was to assess the factor influencing BSE in quantity. Therefore, a qualitative study should be conducted to evaluate these factors. In addition, this study was based on examining active medical records, and the number of single and menopausal women was very limited; thus, a descriptive or experimental study can be conducted separately on these cases. BSE examination results can also be considered as a separate study.

Given that the performance of self-examination in this study was poor, after the implementation of appropriate training and community based programs, the performance could be re-examined and the impact of continuing education can be measured on appropriate performance. This study was performed on women who had health records in health centers; therefore, the number of single and menopausal women was very limited. Thus, a descriptive or experimental study can be conducted separately on these cases. The results of clinical examination and mammography can also be considered as a separate study.

Conclusion

The results of this study showed that BSE performance among women was very poor. To correct this situation and correctly perform BSE regarding time or technique, appropriate educational programs including educational panels are mandatory for the public. The effectiveness of self-examination is largely associated with the performance. Thus, health personnel should teach self-examination in practice or provide educational films for all the women, especially those who have low education levels, do not work, and are often at home. Continuing education programs through mass media, such as television, radio, and newspapers, should be exercised. Moreover, essential trainings by health staff seem necessary, especially during pregnancy, postpartum, and even during premarital counseling. Providing posters and educational pamphlets about breast cancer screening methods is useful because high level of awareness of the people has an impact on their performance.

The results also showed that, in women at high risk, the performance of BSE and its quality was better. Therefore, by making women sensitive to the issue and the benefits of early detection of the disease, their performance can be improved. According to the results, doctors have an important role in advising women on self-examination. Although a significant percentage of women had not received any advice on BSE. Therefore, it seems that the Ministry of Health and Medical Education can prioritize this issue in the training of health personnel, including doctors, midwives, and other health workers, and play an important role in prevention and early detection of breast cancer.

Ethical issues
We have no ethical issues to declare.

Conflict of interests
We declare that we have no conflict of interests.

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