Clinical breast exam and mammography in women referred to health centers in Tabriz, Iran

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ABSTRACT

Introduction: Breast cancer is the most common cancer and the second principal cause of cancer death in women as well as the most common cause of death in Iranian women aged 35-55 years. Detection of breast cancer in its early stages is amenable to almost complete cure. Breast cancer screening comprises breast self-examination (BSE), clinical breast examination (CBE) and mammography. The study aimed to examine the performance of CBE and mammography among women referring to health centers of Tabriz, Iran. ***Methods:*** This was a descriptive-analytical research carried out on 400 women aged 20-50 years. The samples were chosen through random multistage sampling among health centers of Tabriz then active records of women. A questionnaire and observational checklist was used to elicit socio-demographic information and performance of women towards breast cancer screening methods. Descriptive and inferential statistics (chi-square and Fisher's exact test) were used to analyze the data through SPSS 13. ***Results:*** Only 19.1% of women had clinical breast examination and 3.3% had mammogram. The main reasons why women had not performed breast cancer screening were as follows: being unaware of breast screening methods, not having a breast problem and not feeling the necessity... There was a significant correlation between performing CBE and history of breast tumor and also, between performing the mammography and family history of breast cancer and history of breast tumor (P < 0.05). ***Conclusion:*** The findings showed that the performance of breast cancer screening methods was not satisfactory. In addition, their performance in high risk women was very desirable than others. The presentation of imperative education about breast cancer screening methods through health staff especially in pregnancy, post-partum and even in premarriage councelling periods seems necessary

Introduction

Breast cancer is considered the most common cancer among women and it is the second leading causes of cancer death (after lung cancer).[1-5] According to statistics, breast cancer is the common cause of death in Iranian women aged 35-55 years.[6] Approximately, in every 180,000 new cases of breast cancer diagnosed in the U.S., about 48,000 ones die annually.[4] Evaluating different types of recorded cancers in recent decades in Iran showed breast cancer as the most common malignancy among Iranian women.[7] The risk of breast cancer increases almost with a linear plan along with age increase. Approximately 80 percent of breast cancers in women are diagnosed in ages over 50.[3] The age of breast cancer in Iran is 10 years younger than other communities. The mean age of incidence of breast cancer in other communities is over 50 years old while in Iran it is estimated to be over 40 years.[8] The most

common age period of breast cancer in Iranian women is 40-49 years. The number of diagnosed cancers in the first stage reported only 18%[9] whereas in developed countries, 80% of patients are diagnosed in the first stage of incidence.[10]

Furthermore, according to the latest report, the incidence of breast cancer in Iranian women has increased from 10 in 100,000 in 2003 to 27 in 100,000 in 2007 and also to almost 33 people in 100,000 in 2008[11] which is a higher figure than previous reports and indicates ascending trend of this cancer.

International statistics also showed an increasing incidence of breast cancer and its faster rate in developing countries which had lower rate of breast cancer so far.[5] Annually, seven thousand people in Iran added to ones suffer from breast cancer and there are 100,000 women with this disease in this country.[12]

The prognostic improvement of breast cancer directly is associated with the stage patients is diagnosed in.[7] Early diagnosis is the infrastructure of effort to reduce mortality caused by breast cancer. Thus, some screening programs and diagnostic methods have been developed to diagnose it at early stages. Studies have shown that the mortality of participated women in breast cancer screening reduced to 40%.[13,14] Educating the public about the need to early detection of breast cancer through screening is of high importance.[15] Self-examination, mammography and clinical breast examination are the most effective methods for early diagnosis.[7,14,15] Nowadays, mammography is a tool to decrease mortality rate caused by breast cancer. According to two studies, in those who mammography identified their breast cancer in early stages, the success rate of breast cancer treatment has been high.[16,17] Therefore, mammography is of the main component of screening programs associated with physical examination which is one of the complementary methods in disease detection.[3] In 50-74 year-old women, screening which includes clinical examination and mammography, significantly has reduced the mortality rate caused by breast cancer.[18] Ohuchi et al. in a study on early de-

tection of breast cancer concluded that through screening along with mammography, approximately 73 percent of breast cancers were detected and in screening test without mammography only 39 percent were detected.[16] Considering that diagnosis of breast tumors in its early stages is very effective in treatment results, for quicker diagnosis, the following steps have been recommended by executive instructions of Iran's Ministry of Health: Women less than 30 years with no symptom have no need for annual CBE. Only if there is a high risk, annual examination will be indicated. Women over 30 years need annual examination. The first basic mammography is routinely recommended for women over the age of 40. Between 40 to 70 years, mammography can be done once every two years in those who do not have high risks and no tumor can be touched in examination. After the age of 70, if mammography and clinical examination were normal so far, mammography and clinical examination would be required once every 5 years.[19] Mammography for women under 50 years who are at low or moderate risk of breast cancer is not an appropriate screening technique, and even for women aged 40-49, the risks of mammography are more than its benefits.[10] The incidence age of breast cancer in Iran is low.

In developing countries that people are not aware of screening methods adequately, public health education and learning is emphasized. Breast cancer is the most common cancer among Iranian women.[20] In the next 15 years, the number of cancers will be increased and it is our tomorrow's disease due to increase of life expectancy in Iran and because the cause of 70 percent of cancer growth is result from change in population age. [12] Despite the importance of the issue and the educations have already been done, still very low percent of the population do screening tests. The preliminary results of a study on 200 women referred to Al-Zahra Educational Hospital showed that 69 percent of the study subjects had used no screening method, BSE was used in 25 percent of the cases, 17.5 percent had annual examina-

tion by physicians and 5 percent did mammography. Moreover, very little information was available about the proper implementation of the methods.[8] It should be noted that the first National Breast Cancer Screening Program was conducted freely in the UK in 1988 by National Health Services. And, more than 110,700 women aged 50-64 years were invited for screening and mammography, once every three years.[10,21] Thereafter, National Breast Cancer Screening Program was done in Australia in early 1990 and 50-69 year-old women were invited for free mammography once every two years. The National Breast Cancer Screening Program of Singapore is the only public screening program in Asia carried out on 50-64 year-old women under mammography once every two years and the half of the cost is provided by the people themselves.[10] In Iran, currently there is no public screening program, although some approvals have been done in government and the Ministry of Health program in this regard.[11]

The role of nurse and midwife in a supportive educational system is to enhance self-care ability of patients to gain knowledge and skill to conduct appropriate decision-makings and cares. Midwives are the best people who effectively can train women about preventive methods of breast cancer.[22] Breast cancer currently is considered as a health problem in Iran's research priorities. Therefore, what is clear in the health system is lack of necessary educations by staff to mothers. However, counseling and breast diseases training particularly in association with breastfeeding duration, periodical breast examination and screening the related diseases as well as referring to physicians if necessary are the tasks of midwives.[23] Therefore, considering the necessity of program, this study was aimed to evaluate breast cancer screening methods and their affective factors on women referring to Health Care Centers of Tabriz.

Materials and methods

This was a descriptive-analytical study in which the status of performing CBE and mammography and their affective factors was done on women referred to Health Care Centers of Tabriz. The study population included all the women referred to Health Care Centers of Tabriz. Since screening method is not recommended to women under 20 and on the other hand, women over 50 had no active health records, 20-50 year-old women who had health records and referred for implementation of health care to the Health Care Centers of Tabriz were selected as the study subjects. The subjects were excluded from the study if had no willingness to participate. The sample size estimated 400 people according to the following formula and considering that in local and national studies, P-values were different for different screening tests, the ratio of 50% was used in this formula.

$$n = z^2pq / d^2 = 1.96 \times 1.96 \times 0.5 \times 0.5/0.0025 = 384.16 = 400$$

The standardized confidence value was 95%. The amount of acceptable error, d = 0.05; Z = 1.96.

Sampling was done in multistage random sampling method. In the first stage, health care centers or health stations were selected from 50 health centers of Tabriz. In the next sage, based on sample size and the number of active records of every center, 20 to 35 records randomly were selected and investigated and after phone call to 20 to 50-year-old women with mentioned records and explaining the study objectives, they were invited. First, from all the records of centers using sample random method, 35 to 50 records were selected and after phone call and loss of some of the subjects, 20 to 35 eligible women were selected from each center or stations. Totally, 40 eligible women were explained about study objectives and ethical consent forms were obtained and data were collected.

Data collection tools were a questionnaire and a researcher-regulated observational checklist which in order to achieve the study objective, based on information inside books, articles and studies of experts and also based on the instructions of Ministry of Health, the questionnaire and checklist were prepared and the valid questionnaire of Okobia et al. also was used.[5] The questionnaire generally con-

sisted of two parts: the first part was related to the questions about socio-demographic characteristics of women (age, marital status, educational level, employment status, income level, marriage age, the number of children, lactation, the quality of breastfeeding, quality of breastfeeding, family history of breast cancer and history of non-malignant breast tumors). The second part was related to status of implementing CBE and mammography, reason of lack of implementing the methods.. The validity of the tool was done using the comments of several faculty members. The reliability was determined by test re-test which was r = 0.8.

The questionnaire was completed by subjects after the two researchers introduced the study objectives in an appropriate place. Before data collection, ethical satisfaction form was given to the study subjects and written consent also was received and voluntariness and confidentiality of the information were emphasized. They could be out providing that they had no satisfaction and willingness. For illiterate people, the questionnaires were completed by the researcher. Descriptive statistics were used to examine the frequency distribution and mean of data and inferential statistics including chi-square and Fisher's exact test to examine the correlation between screening methods performance and women's socio-demographic characteristics. The obtained data were analyzed through SPSS $_{13}$.

This study was approved by the Research Committee of Tabriz University of Medical Sciences.

Results

The study results showed that mean age of the study subjects was 30.1 (7.4) years. The age of the first menarche averagely was 13.92 (1.45) years, their marriage age averagely 19.17 (1.5) years and mean age of their first pregnancy was 21.1 (3.7) years. The majority of the study subjects were married (97.8%) and educational level of most of them (35.5%) was high-school degree and the lowest percentage (6.8%) of them was illiterate. In terms of employment, the majority of them (88.5%) were housewives and the income level of 67.5 percent of women

was sufficient in their own idea. Most of the study subjects (48.9%) had more than one child. The contraceptive methods of most of them were IUD (27.8%), pills (21.1%) and condom (15.5%). In terms of breastfeeding, 88.5 percent of them fed their children with their own milk and the quality of their breastfeeding highly was exclusive (78.53%).

In terms of family history, 3.3 percent of them had history of cancer in their families most of which reported in 2nd grade relatives and then 1st grade. Only 1 percent of the study subjects mentioned the history of benign breast diseases and also 1 percent of them had the history of colorectal and ovarian tumors.

Furthermore, the findings of the present study about the percentages of CBE and mammography among 400 participants are summarized in Figure 1.

The data in Table 1 showed that The age of CBE onset in 54 samples (77.8%) was between 21 to 30 years old, the intervals of referring for CBE in 55 subjects (72.4%) was once a year. Thirty-eight subjects (50%) had been recommended to perform CBE, 18 of whom (24%) had been recommended by gynecologist and 18 subjects (50%) by general practitioners. In terms of referring to perform mammography in women who conducted this screening, the first age of referring in 10 subjects (76.9%) was less than 40 years. Eighty subjects (61.5%) had been recommended for mammography and in 8 of them (6.15%) the gynecologist advised them.

Table 2 illustrates the reasons of lack of, breast clinical examinations and mammography in women under the study who did not perform screening methods.

According to Table 3, evaluation of some socio-demographic characteristics using screening method through chi-square and Fisher's exact test, if necessary, showed that

there was a statistical significant correlation between breast clinical examination and history of benign breast tumors (P < 0.05). So that 80 percent of women with history of benign breast tumors used to perform breast clinical examinations. While in subjects without histo-

ry of benign breast tumors, only 18.4% used to do so.

There was a significant correlation between mammography and history of benign breast tumors and family history of breast cancer (P < 0.05). So that, 95.4 percent of women with family history of breast cancer performed mammography but only 2.9 percent of women who had no family history of breast cancer performed this screening. 20 percent of women with history of benign breast tumors performed mammography whereas only 3.1 percent of women with no history of benign breast tumors performed it.
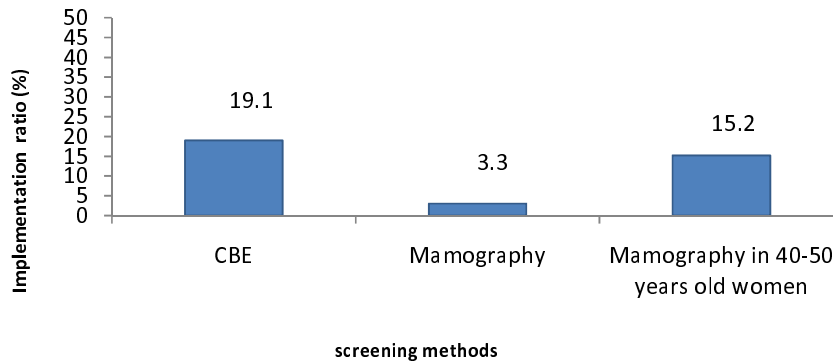

Figure 1: Implementation of different CBE and mammography in the study subjects

Table 1. The status of CBE and mammography in women performing breast exam

	CBE*		Mammography*	
Onset age (year)			**Onset age (year)**	
20	12 (16.7)		< 40	10 (76.9)
21-30	54 (77.8)		40	2 (15.4)
> 30	4 (5.6)		> 40	1 (7.7)
Referring to perform				
Every 6 months	1 (1.3)			
Every year	55 (72.4)			
Every 2 years	7 (9.2)			
Every 3 years	3 (3.9)			
Others	10 (13.2)			
Refer for screening			**Refer for screening**	
Yes	38 (50)		Yes	8 (61.5)
No	38 (50)		No	5 (38.5)
The advisor			**The advisor**	
General practitioner	18 (24)		General practitioner	-
Gynecologist	18 (24)		Gynecologist	7 (53.8)
Internist	3 (4)		Internist	1 (7.7)
Midwife	1 (1.3)		Midwife	5 (38.5)
None of them	35. (46.7)		None of them	-

*The data are given as n (%)

Table 2. The reasons not to perform clinical examination and mammography

Mammography	N (%)	CBE	N (%)
Not having a breast problem	162 (42.1)	Not having a breast problem	133 (41.5)
Lack of awareness how to do it	64 (16.6)	Lack of awareness how to do it	77 (24)
Not feeling necessity	43 (11.2)	Not feeling necessity	37 (11.6)
Lack of request by physicians	42 (10.9)	Cost	10 (3.2)
High cost	16 (4.2)	Embarrassment	9 (2.8)
No indication (case)	7 (1.8)	Fear of finding tumor	3 (0.9)
Fear of mammography pain	3 (0.7)	Having no time	3 (0.9)
Others	17 (4.4)	Others	29 (9.1)

Table 3. The association of socio-demographic characteristics with performing CBE and mammography

Socio-demographic characteristics	CBE p-value	Mammography p-value
Educational level	-	-
Employment status	-	-
Income level	-	-
Number of children	-	-
Breastfeeding history	-	-
Quality of breastfeeding	-	-
Family history of breast cancer	-	< 0.05
History of benign breast tumor	< 0.001	< 0.05

Discussion

The findings of the study showed that 76 subjects (19.1%) did CBE, and 13 subjects (3.3%) mammography. In the study of Okobia et al. in Nigeria, 9.1 percent CBE and none of them performed mammography.[5] Furthermore, in the study of Mahoori in Shiraz, 36.5 percent CBE and 9.1 percent also mammography,[3] which to some extent was in accordance with the present study and in this study, women's performance was more poor. However, in the study of Frisell et al. in developed countries, most of women performed all three screening methods.[24] It seems that the reasons of these issues in Iran is lack of adequate education.

Among those who performed CBE, 72.4 percent did screening annually. In the study of Baradaran, 15.4 percent of women annually performed CBE and the majority of them did not respond that in terms of this issue, women's performance had been better in this study.[25]

Fifty percent of those who performed CBE, they have been recommended to do so most of whom (48%) by general practitioners and gynecologists. In the study of Baradaran et al. also most of the women (30.8%) had been recommended by physicians to do CBE[25] which was in accordance with the present study.

Among women who performed mammography, most of them (76.9%) performed it under 40 years and 61.5% of them had been recommended to do screening and most of those who performed mammography (53.8%) had been recommended by gynecologist to do mammography. In the study of Vazifeshenas et al., only 24 percent of employed midwives in the health care centers and health stations of Tabriz had a good performance for breast screening.[26] In the present study, performance of health staff and midwives for screening methods was not good .

Moreover, the most important causes of lack of CBE performance in this study were not having breast problem (41.5%), lack of awareness to do so (24%) and not feeling ne-

cessity (11.6%). In the study of Chong et al., the most important causes mentioned by the studied nurses were lack of necessity, embarrassment and being very busy.[15]

The most important causes of lack of mammography in this study similar to CBE were not having breast problem (42.1%), lack of awareness to do so (16.6%) and lack of necessity (11.2%). In the study of Chong et al., the greatest causes were lack of necessity and then expensiveness of the method.[15] What we can see from mentioned reasons for lack of performing the screening methods in the present study was lack of awareness from implementing the screening methods. As mentioned before, implementation of screening methods has a significant association with having knowledge and awareness.

In this study, statistically there was a significant correlation between CBE with history of benign breast tumor (P < 0.001). So that women with history of benign breast tumor had a higher performance in CBE. In the study of Mahoori et al. also there was a significant correlation between history of breast diseases with performance of CBE.[3] Moreover, in the study of Chong et al., there was a significant correlation between history of breast diseases with performance of CBE[15] which was in accordance with the present study.

In this study, there was a significant correlation between performance of mammography with family history of breast cancer and history of benign breast tumor (P < 0.05). So that women with family history or history of benign breast tumor had a better performance for mammography. In the study of Mahoori, there was a significant correlation between history of breast cancers and family history of breast cancer with performance of mammography.[3] In the study of Rutledge et al. also performance of mammography associated with higher risks in terms of family history and history of breast cancers[14] which was in accordance with the present study.

Conclusion

The results of this study indicated very poor performance of CBE and mammography among the studied women. To improve women's performance, appropriate and continuous educational programs should be implemented through mass media such as radio, TV and newspapers. Telecasting educational films by health centers would be beneficial for women. Providing educational posters and pamphlets for breast cancer screening method also would be useful because, high level of awareness in individuals has a great effect on their desirable performance. Furthermore, providing necessary educations for breast cancer screening methods by health staff during pregnancy and even in postpartum period and pre-marriage counseling seems necessary. The results of the present study showed that screening methods in high-risk women was good; therefore, by sensitizing women toward the issue and advantages of early diagnosis of disease, their performance can be improved. According to the study, physicians can have a very important role for advising them to perform screening methods; it should be noted that a considerable percentage of women had never received any recommendations. Therefore, the Ministry of Health and Medical Education, with prioritizing this issue in educational programs of health staff such as physicians, midwives and other health staff, can have a very important role in early prevention and diagnosis of breast cancer.

Suggestions for Further Researches
Given that status of screening methods in this study was very poor, by implementation of good and community based educational programs -according to the conclusion part - the status of performance can be revised again and evaluate the effect of continuous and appropriate education on performance of individuals. Considering that the present study was a quantitative research, its limitation was not evaluating the lack of implementing the screening methods qualitatively; therefore, it is recommended to conduct a qualitative study to evaluate its reasons. Furthermore, this study was very limited according to the

examined active health records and the number of menopausal and unmarried women. Another study separately should be done on these people descriptively or experimentally. The results of clinical and mammography examinations also can be reviewed in a separate study. Reviewing risk factors of breast cancer and comparing confrontation with risk factors in diseased and non-diseased individuals is recommended.

Ethical issues
None to be declared.

Conflict of interest
The authors declare no conflict of interest in this study.

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