

Measurement of the knowledge level about breast self-exam among the female employees of a university hospital, Turkey

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ABSTRACT

Objective: Periodic mammography, clinical breast examination and breast self-exam (BSE) facilitate getting a therapeutic response and improve disease prognosis, by leading to early diagnosis of the breast cancer. **Methods:** The study included a total of 618 women working in Çukurova University, Faculty of Medicine, as technician, secretary, staff, midwife and doctor. They answered a 22-items questionnaire consisting of questions about general knowledge, 8 of these were about BSE. **Results:** While it was statistically significant that the education was not correlated with the age of onset of BSE and timing of BSE, the education was significantly efficient in terms of knowing the aim of the BSE, its frequency, post-menopausal BSE time, nipple discharge properties in the case of breast cancer, diagnostic methods and the risks. While it was statistically significant that the profession was not related to age of onset of BSE and knowing the right

day of the month on which BSE should be performed, the education was likely to be efficient in knowing the frequency, post-menopausal BSE time, aim of the BSE, nipple discharge properties in the case of breast cancer, diagnostic methods and the risks. When the percentage of giving right answers to the questions and educational background and professional groups were compared, it was seen that the difference of the number of right answers and professional groups was significant. **Conclusion:** Based on our results, we concluded that the education about BSE is warranted in order to increase the likelihood of female healthcare personnel to diagnose breast cancer at an earlier stage, given their role in raising the awareness of the population.

Key words: Breast cancer, breast self-exam, early diagnosis, woman

Introduction

In Turkey, 30,000 women per year are diagnosed with breast cancer.^[1] Substantial increase of cancer incidence determined in Turkey, which is one of the developing

countries, rendered focusing on the studies for early diagnosis mandatory. As there is no preventive modality against breast cancer, early diagnosis is important in its prevention.^[2]

The visibility of this organ, easiness of the early diagnosis and the treatability of the disease may be considered as an advantage for breast cancer. When the breast cancer is diagnosed at an earlier stage *via* periodic examinations and screenings, life expectancy may be prolonged and the cure may be achieved. Therefore, it is important that the women know about the importance of the early diagnosis and have increased awareness about these methods.

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The methods used for the diagnosis of the breast cancer include breast self-exam (BSE), mammography and clinical breast examination (CBE). Although BSE alone is not a sufficient method, it is important because it will be efficient to give women the responsibility of their own health, the chance of knowing the breast tissue and the ability to adopt protective health behaviors.^[3,4] Although the studies about this topic are limited, it was reported earlier that there were evidence showing that mammography is a strong screening method in women aged between 50- and 69-years-old, that the efficacy of the mammography in the diagnosis of the breast cancer was contradictory in the women aged below 50-years-old due to the presence of a dense breast tissue and to the possibility of false positivity; and that digital mammography was more sensitive in younger women and in those with dense breast tissue.^[5,6] Although breast cancer is known as a disease that occurs at advanced age, 25% of the cases occur in the women aged between 40 and 49-years old, whereas in recent years diagnosis at earlier ages have been witnessed.^[7] Therefore, it is important to educate the women about early diagnosis and treatment as early as possible.

In low-middle income countries, including Turkey, where the mortality rate is high due to late diagnosis and insufficient treatment as a result of the lack or limited number of health screening, BSE appears as an important method for the early detection of a mass in the breast and the studies concerning early diagnosis report that the education is mainly based on this examination method.^[8,9] The nurses play an important role in the education of the women about breast cancer. Many investigators described the education about BSE as an important function of the nursing. Before implementing this education, the knowledge level about breast cancer and BSE and the risk group of the women should be defined.^[3,10]

Material and method

The study included a total of 618 women working in Çukurova University, Faculty of Medicine, as technician, secretary, staff, midwife and physician. They answered a 22-item questionnaire consisting of questions about general knowledge, 8 of these were about BSE. The questions included in the questionnaire were raised based on the literature search [Table 1].

Data were evaluated using SPSS 16.0 Windows software. Percentage was used as descriptive statistics and statistical significance was evaluated using chi-square test. $P < 0.05$ was considered to be statistically significant. The study was approved by Board of Ethics of the Çukurova University,

Faculty of Medicine, Dean's office and the participants gave their informed consent form.

Results

The study included a total of 618 women working in Çukurova University, Faculty of Medicine, as technician, secretary, staff, midwife and doctor. Of the employees, 435 (70.4%) were midwife, 68 (11%) were doctors, 56 (9.1%) were medical secretary, 50 (8.1%) were staff and 9 (1.5%) were technicians. According to age distribution, the largest group included female healthcare employees aged between 18 and 30-years-old [Figure 1].

Of the female employees, 56.5% were married and 43.5% were single. When the educational background

Table 1: Survey questions

Questions
Age
Marital Status
Educational status
Working section
Have you received any information about Breast Cancer and Breast Self-Examination (BSE)?
If you have done so, what are the sources?
Do you have a breast cancer? If so, can you explain it?
Is there any case of breast cancer in your family (mother, sister, aunt, cousin etc.)?
Is there any case of breast cancer among your friends?
At what age should a woman start doing BSE?
How often should BSE be done?
In which month should a woman start to do BSE?
When should BSE be done during postmenopause period?
What is the main purpose of BSE?
In which type of breast leakage should a doctor exam definitely be carried out?
What are the reasons why women cannot do BSE?
What are the methods of diagnosis of breast cancer in its early stage?
What are the risk factors in developing breast cancer?

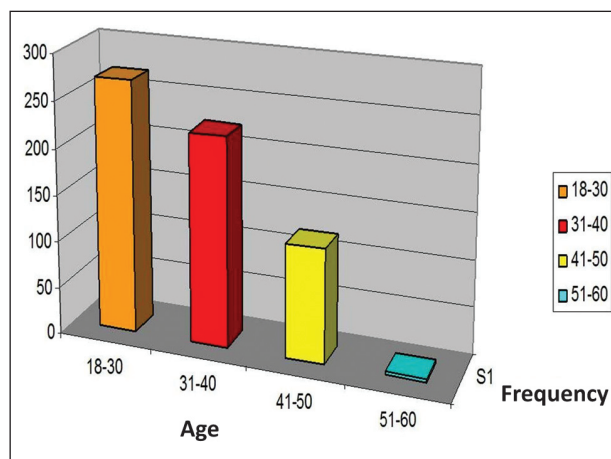


Figure 1: Age distribution of female healthcare employees.

was considered, 78.5% of the female employees had bachelor's degree. According to their professions, 81.4% were healthcare professionals and 18.6% were allied health personnel [Table 2].

Of the female employees, 88.7% stated that they have been previously informed about BSE. Of the 548 female employees who told that they have received information about BSE 37.4% reported to have used press and visual media and 44.2% reported to have received this information from a healthcare professional or during a professional education. Of 35 women prediagnosed with breast cancer, 7 had confirmed breast ca [Table 3].

When we considered the incidence of breast cancer with advancing age among female employees, we determined that there were 2 (50%) women aged between 51-60 years that did not have diagnosis vs. 2 (50%) who were diagnosed with the disease [Table 4]. When familial etiology was questioned, 10% stated that they had familial history of Breast Disease.

When we questioned the degree of relationship of the family members with breast disease, we found that 48.2% were first-degree relatives [Tables 5 and 6].

Twenty-eight percent of the female employees stated that at least one friend of them had breast cancer, meaning that 3 of each 10 women are diagnosed with breast cancer.

When we asked about the age of onset for BSE to our colleagues, 41.7% answered that the age of onset for BSE should be after the first menstruation, whereas 33.2% claimed that it should be after the age of 20 years.

Of the female employees, 76.6% gave a correct answer to the question about the timing of BSE. While 52.1% of the female employees told that BSE should be performed 5-7 days after the completion of the menstruation, 34% stated that the corresponding time point should be 5-7 days after the onset of the menstruation.

The participants were questioned about the aim of performing BSE and 71.8% told that the aim was to notice any mass. Of those who were informed about BSE, 89.4% told that BSE was performed in order to notice any potential mass.

When we asked them about the patterns of nipple discharge possibly seen during the BSE that requires to get help, 75.7% stated that they would be concerned about a continuous unilateral nipple discharge and abnormal appearance of the nipple.

Table 2: Profession of the participants

Profession	Number (n)	Percentage (%)
Technician	9	1.5
Secretary	56	9.1
Staff	50	8.1
Midwives	435	70.4
Doctor	68	11.0
Total	618	100.0

Table 3: Diagnosis of the participants

Type of diagnosis	Number (n)	Percentage (%)
Fibrocyst	28	80.0
Breast Ca	7	20.0
Total	35	100.0

Table 4: The age distribution of patients

Age, yrs	Diagnosis of breast cancer		
	No n (%)	Yes n (%)	p
18-30	263 (97.4)	7 (2.6)	
31-40	209 (93.7)	14 (6.3)	
41-50	109 (90.1)	12 (9.9)	
51-60	2 (50.0)	2 (50.0)	0.0001

Table 5: Familial history of breast ca of the participants

Diagnosis of breast cancer	Familial history of breast cancer	
	Yes n (%)	No n (%)
No n (%)	50 (8.6)	533 (91.4)
Yes n (%)	7 (20.0)	28 (80.0)

Table 6: Degree of relationship that familial history of breast ca of the participants

Degree of relationship	Frequency (n)	Percentage (%)	Cumulative percentage
Mother	9	1.5	16.1
Sister	9	1.5	32.1
Maternal Aunt/grandmother	19	3.1	66.1
Cousin	9	1.5	82.1
Paternal Aunt/grandmother	10	1.6	100.0

When we questioned the reasons for which the women working in our hospital did not perform BSE, the reasons included especially the lack of knowledge and interest. When we questioned the methods of early diagnosis for breast cancer, which they believe are most appropriate, 86.9% of the participants chose the answer of BSE+ doctor examination+ mammography combination. For the question about the risk (s) of the breast cancer, 55.8% of the participants selected the answer combination consisted of menarche at 11 years + obesity + history of breast ca in the mother/sister.

We detected that 548 (88.7%) participants were informed about BSE, whereas 70 (11.3%) were not. When a comparison was done between educational background and age of onset to BSE and duration of BSE, the education background was found to be statistically insignificant. ($P=0.0001$, $P=0.05$, respectively) [Table 7]. However, we saw that education had a statistically significance in knowing BSE's aim, BSE frequency, when it is performed during the post-menopausal period, the characteristics of the nipple discharge in breast cancer, diagnostic methods and risk factors ($P=0.005$, $P=0.001$, $P=0.0001$, $P=0.0001$, $P=0.009$, $P=0.007$, respectively) [Table 8]. While it was statistically significant that the profession was not related to age of onset to BSE and knowing on which the day of the month BSE would be performed ($P=0.000$, $P=0.001$, respectively) [Table 9], the education was determined to be likely efficient in terms of knowing the frequency. When the percentage of the people who gave right answers to the questions and educational and professional groups were compared, it was seen that the difference of the number of right answers and professional status was significant ($P=0.0001$, $P=0.0001$, respectively) [Tables 8 and 9].

Discussion

In breast cancer, the most efficient way to protect/improve the health and to decrease morbidity and mortality is early diagnosis. Mainly recommended methods of early diagnosis include clinical breast examination, mammography and BSE. Although there are different insights and studies about the efficacy of BSE, it is recommended for the detection of

BSE age of onset	Literate (n)	Primary education (n)	Secondary education (n)	Higher education (n)	Total (n)
15 years	0	1	11	28	40
20 years	0	7	31	167	205
30 years	1	9	28	70	108
After the first menstruation	1	4	36	217	258
Unknown	0	2	2	3	7
Total	2	23	108	415	618
BSE examined time					($P=0.0001$)
Anytime	0	6	18	29	53
After finishing 7 days of menstruation	1	10	54	257	322
After starting 5-7 days of menstruation	0	5	29	178	212
First day of menstruation	0	0	5	18	23
Unknown	1	2	2	3	8
Total	2	23	108	485	618
					($P=0.05$)

the palpable breast tumors and it is reported to be efficient to build an awareness of breast health in the women, especially in developing and in underdeveloped countries.^[11] Although conflicting results for the prolonging effect of BSE on life

Table 8: After menopause BSE of participants

Aim of BSE	Literate (n)	Primary education (n)	Secondary education (n)	Higher education (n)	Total (n)
Finding tumor	0	3	7	17	27
Recognize breast tissue	0	2	9	56	67
Noticed mass	0	1	3	21	25
Noticed any mass	2	14	87	381	484
Unknown	0	3	2	0	5
Total	2	23	108	485	618 ($P=0.005$)
Frequency of examine					
Every week	0	1	11	35	47
Every month	2	11	72	389	474
Biweekly	0	1	2	12	15
A semi-annually	0	9	21	47	77
Unknown	0	1	2	2	5
Total	2	23	108	485	618 ($P=0.001$)
After menopause BSE					
Estrogen taken	0	0	1	13	14
Once a month	1	9	33	133	176
Every month on a certain day	0	6	47	292	345
On the sixth day of each month	0	5	25	44	74
Unknown	1	3	2	3	9
Total	2	23	108	484	618 ($P=0.001$)
Methods of diagnosis					
Mammography	0	1	8	14	23
Breast	0	1	3	8	12
Ultrasonography					
BSE, Doctor examination	2	18	94	441	555
Mammography					
Doctor examination	0	1	2	22	25
Mammography					
Unknown	0	2	1	0	3
Total	2	23	108	485	618 ($P=0.009$)
Risks					
The first menstruation is 11 years old	0	1	2	5	8
Obesity	0	0	2	5	7
Family history	1	11	51	182	245
All of them	0	9	52	291	352
Unknown	1	2	1	2	6
Total	2	23	108	485	618 ($P=0.007$)
Percentage answering question (%)					
0	0	1	0	0	1
12.5	0	2	2	1	5
25	0	4	6	9	19
37.5	1	3	13	40	57
50	1	2	30	91	124
62.5	0	7	27	141	175
75	0	4	19	145	168
87.5	0	0	10	57	67
100	0	0	1	1	2
Total	2	23	108	485	618 ($P=0.0001$)

Table 9: Job done with time and age of BSE relationship

BSE making time	Technician (n)	Secretary (n)	Staff (n)	Nurse (n)	Doctor (n)	Total (n)
Any day	1	8	0	0	0	9
After finishing 7 days of menstruation	16	26	10	1	3	56
After starting 5-7 days of menstruation	12	25	10	0	3	50
First menstruation day	22	224	168	20	1	435
Unknown	2	39	24	2	1	68
Total	53	322	212	23	8	618 (P=0.001)
BSE starting age						
15 years	0	5	0	4	0	9
20 years	4	12	16	21	3	56
30 years	1	17	19	10	3	50
After the first menstruation	34	137	63	200	1	435
Unknown	1	34	10	23	0	68
Total	40	205	108	258	7	618 (P=0.000)
Percent answering questions (%)						
=0	0	0	1	0	0	1
=12.5	0	1	3	1	0	5
=25	1	5	5	8	0	19
=37.5	2	7	9	36	3	57
=50	4	15	12	85	8	124
=62.5	1	15	11	129	19	175
=75	1	9	5	131	22	168
=87.5	0	4	4	43	16	67
100	0	0	0	2	0	2
Total	9	56	50	435	68	618 (P=0.0001)

expectancy were obtained in many studies performed on the women who periodically perform BSE, it was clearly reported that the first person who detected the mass in the breast cancer was the woman herself and that the rate of the detection of the cancer at an earlier stage was higher in the women who were applying BSE compared to those who were not doing it.^[5,11-15] Therefore, the women should be encouraged for BSE, which plays an important role in the early diagnosis of the breast cancer.^[16,17]

In our study, we aimed to measure the knowledge level about BSE and define the risk group before planning the education. When we questioned the reasons for which the female employees of our hospital were not doing BSE, we saw that these reasons included especially the lack of knowledge and interest. The awareness and the motivation levels can be increased by raising the level of consciousness of the individuals.

We determined that, among the female employees who participated in our study, the largest age group was 18-30 years with a percentage of 43.7%, followed by the age group of 31-40 years with a percentage of 36.1%. For the last years, the possibility to diagnose breast cancer at an earlier stage renders the education of the women about early diagnosis and treatment important.^[18] In addition, it is acknowledged that the mammography is not effective and clinical breast

exam is insufficient before the age of 40 years, increasing the importance of BSE for the health of young women.^[19] Younger age of our participants renders our study important to raise the awareness about breast cancer among the young population. Giving healthcare educations and informing the women about this issue will help them to develop a positive healthcare behavior. In our study, when we asked for their source of information to the 548 female employees who told us that they have received information about BSE, 37.4% reported to have used press and visual media and 44.2% reported to have received this information from a healthcare professional or during a professional education. These results show us that the most important role in the formation of preventive health behaviors in women belongs to healthcare personnel. Given the cultural features of our country and the traditions of our population, the fact that nurses and female doctors can more easily communicate with other women and inform them about BSE is very important for the success of the education. Therefore, healthcare personnel should keep their information about breast cancer updated, raise awareness about breast cancer in the whole population, starting from the women, and work as volunteers. When the percentage of giving right answers to the questions and educational background and professional group were compared, it was seen that the difference of the number of right answers and professional group was significant ($P=0.0001$, $P=0.0001$, respectively). Accordingly, we conclude that the knowledge

level of healthcare professionals about BSE is higher than that of allied healthcare personnel and that the need for education about BSE is greater in allied healthcare personnel. The inclusion of breast cancer and BSE education in the education-training program of the healthcare professionals indispensably contribute to a better knowledge level. During the education planning, allied healthcare professional should be considered as the group that has to be primarily addressed in order to increase the likelihood of early diagnosis in the breast cancer.

Education was found to be statistically significant in knowing BSE's aim, BSE timing, when it is performed during the post-menopausal period, the characteristics of the nipple discharge in breast cancer, diagnostic methods and risk factors ($P=0.005$, $P=0.001$, $P=0.001$, $P=0.0001$, $P=0.009$, $P=0.007$, respectively). However, when a comparison was done between education level and age of onset to BSE and duration of BSE, the education was found to be statistically significantly ineffective ($P=0.0001$, $P=0.05$, respectively). Accordingly, we can conclude that the group of highly trained healthcare professionals, who play an important role in the education of the population, has also incomplete knowledge level about BSE and need education in order to complete the missing information, correct the wrong information and update the existing information.

In conclusion, when accurately and efficiently performed, BSE is an effective preventive healthcare behavior. When we evaluated our results, we concluded that planning education about BSE for all healthcare personnel was important, by increasing their knowledge about BSE and by taking into account their role in increasing the awareness of the population and in increasing the likelihood of early diagnosis of breast cancer. Two hundred and fifty female employees, majority of whom are consisted of allied healthcare personnel who were volunteers to participate in the education, were given applied education by explaining breast cancer, its symptoms and the methods of early diagnosis via BSE using written-visual tools and a model. The brochures that explain BSE were distributed. Periodically organized educations should allow to reach more healthcare professionals and to continue to raise awareness about BSE among the healthcare professionals and thereby, in the population.

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