

## Factors Influencing Regular Mammography Screening Participation in a Sample of Turkish Women: Cross-Sectional Study

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### ABSTRACT

**Background:** Regular mammography is important for early detection of breast cancer (BC). Women in developing countries haven't regular mammograms. There is little information about why women do not maintain regular screening schedules.

**Objectives:** To examine participation in regular mammography screening of women applying to cancer early diagnosis, screening and training center and identify which factors are associated with those women who participate in screening.

**Methods:** In the study, whose scope is cross-sectional, the archive files (14027 file) of the women applying to cancer early diagnosis center in between the years of 2004 and 2011 were evaluated. We accepted to be inclusion criteria if archives files had mammogram results. In all tests, the level of significance was set at 0.05.

**Results:** The mean age of participants were  $50.50 \pm 8.17$  years. 91.2% were not working, 74.3% had 11 years and less education. It was determined that 52.8% of women were in menopause, 27.5% used oral contraceptive, 11.6% used hormone replacement therapy(HRT), 12.7% had a family history of breast cancer. 9.5% of women had regular screening(RS). It was observed a statistically significant difference between women's RS behavior and their age, educations and job status. In further analysis, affecting factors of the RS behavior were using HRT (OR:1,481; 95% CI:1,24-1,76), the presence of family history of BC (OR:1,613; 95% CI:1,37-1,89), breast self-examination (BSE) (OR:1,221; 95% CI:1,07-1,39) and suspicious mass in mammography (OR:1,263; 95% CI:1,09-1,45). Regular mammography uses was lower for university graduates (OR:1, 324; 95% CI:1,02-1,71).

**Conclusion:** Age, education, family history, received HRT, performed BSE, suspicious mass were the predictor of regular screening.

### Keywords

Women, Mammography, The breast cancer risk factors, Demographic factors, Retrospective study.

### Introduction

The World Health Organization (WHO)'S Global Action Report shows that number of newly diagnosed cancer cases are increasing [1]. Breast cancer is the most common cancer type among female

population. Women who were newly diagnosed with breast cancer are about 1.67 million in the World in 2012 [2]. The number of newly diagnosed cancer cases was approximately 14.1 million in the World in 2012, and 6.7 million of these cases were in women. One in every four of all cancers in women according to these numbers are breast cancer. Also, breast cancer is the most common cause of cancer death among women. About 522,000 women died from breast cancer in 2012. Low- and middle-income countries have the highest incidence and mortality for BC [2].

Rate of BC is continue to increase in low and middle income countries. Breast cancer was the most common cancer among women in Turkey. Republic of Turkey Ministry of Health indicates that the incidence of BC has reached to 50/100,000 in the western part of Turkey [3]. WHO noticed that comprehensive cancer control plans are needed to reduce fatal malignancy progress with a late diagnosis in low-income and middle-income countries [4]. Ultrasonography and magnetic resonance images of breast are used to determine cancer. But these methods aren't population based screening programmes. Reduction in both mortality and incidence of BC is possible with population based screening programmes [5]. The first screening method to early determine of BC is mammography in developing countries. Mammography is a primary screening test because of its high sensitivity and specificity. It is also the most effective method for detecting early stage breast malignancies [6]. It is possible to reach to early diagnoses in many women with the use of breast cancer screening programs. The majority of women in the some countries are not getting regular screening as recommended [7]. Only 28.1% of Turkish women had regular mammogram. Romanian women among all European countries have the lowest proportion (13.5%) [8].

In a study reported the least regular screeners are found in Denmark (29.3%), Poland (40.1%), Germany (48.2%), Greece (47.5%) and Switzerland (48.9%). 89.8% of Sweden women had 'regular mammography [9]. In a study in European countries reported that after Sweden, The Netherlands has the longest running programme and the second-highest proportion of regular screeners (84.9%). There is different information about why women do not maintain RS schedules [6]. So, identifying the important factors influencing to maintaining RS schedules especially in low- and middle-income countries are required. Turkey has upper-middle income according to the World Bank' classification [10]. We know the overall power of the test is strongly influenced by the size of the sample, and our research have a large sample. The results of this study will provide useful information about barriers related to maintenance of mammographic screening. Thoroughly understand influencing factors on maintenance of mammography, low and middle-income countries can be made the action plans to increasing use of screening mammography. The aim of this study was to investigate the factors influencing on regular mammography screening behavior in women.

## Patients and Methods

In this study, the data were obtained by evaluating retrospectively the archive files in consulting early diagnosis, screening and training center. There was totally 14027 women's report in consulting center for between the years 2004 and 2011. We didn't evaluate between 2011 and 2013. Because early diagnosis, screening and training center didn't services in between 2011 and 2013.

## Design of the Study

This study is an analytic and cross-sectional study.

## Data Collection Form

The research data were obtained by "BC Patient Evaluation Form"

belonging to cancer early diagnosis, screening and training center. The Information Form is related to having the risk factors of BC of the women consulting early diagnosis, screening and training center and their mammography screening. This form has three sections: The First Section has questions including information about woman's socio-demographic characteristics. The Second Section has questions about BC risk factors of women. The Third Section consists of questions related to mammography screening. For mammography screening, it was accepted as regular mammography screening if it was done at required intervals, or the women came to have mammography screening again in two years.

## Ethics Statement

The research was approved by the Human Research Ethics Committees of University (protocol number: 2014/366).

## The Evaluation of Data

Data Analysis: During the evaluation of data, SPSS 20 (Statistical Package for Social Sciences PASW Inc., Chicago. IL.USA) was used for statistical analysis. Help was received from a statistics expert. Results were evaluated at 95% confidence interval and at  $p < 0.05$  significance level.

The dependent variable for logistic regression analysis was regular mammography screening. The independent variables considered in the logistic regression models were age, marital status, educational status, job status, menopausal state, parity, the state of being the first labor age over 30, breastfeeding, oral contraceptive use, the state of using hormone replacement therapy (HRT), the state of having BC history in the family, breast self-examination (BSE), the state of having a history of gynecological cancer or cancer suspicion, and the state of detection of a suspicious formation as a result of mammography. Missing data are excluded from analysis. Because, the rate of the missing data was very low (<4%).

Logistic regression analysis (forward step-wise) was used to identify the predicting factors of the regular mamogram. In a first step, all items were analysed, in a second step, HRT variable was removed.

## Results

It was found that the mean age of the women was  $50.50 \pm 8.17$  years old, 91% of them didn't work (housewife or retired), and only 8.8% of them worked in a job. According to the results obtained from the records, it was determined that nearly all of the women were married (97%) and had a health insurance (96%), very few of them didn't have a social security (1.9%) and weren't married (2.4%); nearly three quarters of the women (74%) received education for 11 years or less, nearly one ninth of them (11%) received education for 12 years or more, nearly one tenth of them were illiterate, and very few of them were literate but they didn't graduate from any school (Table 1).

It is seen that 9.5% of the women consulting cancer early diagnosis, screening and training center had regular mammography screening, and most of them (90.5%) didn't have regular screening (Table 2).

Age (year) ( $x \pm ss$ )		50,50 $\pm$ 8,17	
		n	%
Marital status	Married	13666	97.4
	Single	337	2.4
	No data	24	0.2
Health Insurance	Yes	13509	96.3
	No	273	1.9
	No data	245	1.7
Education	Illiterate	1376	9.8
	Literate	354	2.5
	Primary and Secondary ( $\leq 11$ )	10426	74.3
	University ( $\geq 12$ )	1570	11.2
	No data	301	2.2
Occupational status	Employed	1237	8.8
	Retired or Unemployed (Housewife)	12790	91.2

**Table 1:** Main social and demographic characteristics of womens (n=14027).

Regular mammography	n	%
Yes	1327	9.5
No	12700	90.5
Total	14027	100

**Table 2:** The state of having regular mammography screening of the women consulting cancer early diagnosis, screening and training center.

Table 3 includes the results of t-test (for age variable) and chi-square test concerning the comparison of the women's some characteristics according to their regular mammography screening behavior. An statistically significant difference was observed between women's regular mammography screening behavior and their age, educational, job status, menopausal status, birth number, oral contraceptive pills use, hormone replacement therapy use, breast cancer family history, breast self-examination perform, the presence or suspicion gynecological cancer and suspicious formation in mammography.

It was found that the mean age of those having regular screening was higher than those who didn't have regular screening, and the age range of those having regular screening was narrower than those having irregular mammography screening. The difference between them was found as statistically significant ( $p < 0,005$ ). When having regular mammography screening behavior is examined, it is seen that having regular mammography screening behavior of the women receiving education for 12 years or more (9.0%) and receiving education for 11 years or less (9.9% is at close rates, and these rates are at lower levels in the group having no formal education (7.9%) and being illiterate (6.7%), and these observed differences are significant ( $X^2(3)=16.342$   $p < 0,001$ ) (Table 3).

It is seen that while 7.6% of the women working in a job had regular screening, this rate was up to 9.6% for the women who didn't work in a job, and the observed difference was found as

statistically significant ( $X^2(1)=5.487$ ,  $P < 0.005$ ) (Table 3).

	Regular Mammography		Unregular Mammography		Test- value
Age (year) [ $x \pm ss$ ], (n)]	51.02 $\pm$ 7,69 (1327)		50.44 $\pm$ 8,22 (12698)		t = 2.573*
<b>Marital status</b>	n	%	n	%	X <sup>2</sup> (1) = 0.536
Married	1297	9.5	12369	90.5	
Single	28	8.3	309	91.7	
<b>Education</b>					
Illiterate	92	6.7	1284	93.3	X <sup>2</sup> (3)=16.342*
Literate	28	7.9	326	92.1	
$\leq 11$	1035	9.9	9391	90.1	
University ( $\geq 12$ )	142	9.0	1428	91	
<b>Occupational status</b>					
Employed	94	7.6	1143	92.4	
Unemployed	1233	9.6	11557	90.4	
<b>Menopausal status</b>					
Unregular menstrual cycle	296	8.6	3141	91.4	X <sup>2</sup> (2)=27.515*
Postmenopausal	239	7.6	2887	92.4	
<b>Birth number</b>					
Not having birth	53	9.9	482	90.1	X <sup>2</sup> (3)=11.344**
1-2	752	10.1	6723	89.9	
3-4	413	8.9	4222	91.1	
$\geq 5$	89	7.3	1125	92.7	
<b>Breastfeeding status</b>					
Yes	1218	9.4	11690	90.6	X <sup>2</sup> (1)=0.319
No	92	10	828	90	
<b>Using oral contraceptive</b>					
Yes	392	10.2	3450	89.8	X <sup>2</sup> (1)=3.194
No	931	9.2	9177	90.8	
<b>Hormone replacement therapy</b>					
Yes	225	14.1	1368	85.9	X <sup>2</sup> (1)=45.465*
No	1076	8.9	11065	91.1	
<b>Breast cancer family history</b>					
Yes	244	13.8	1520	86.2	X <sup>2</sup> (1)=44.779**
No	1075	8.8	11086	91.2	
<b>Breast self-examination</b>					
Yes	816	10.5	6940	89.5	X <sup>2</sup> (1)=21.778*
No	506	8.2	5673	91.8	
<b>The presence/suspicion gynecological cancer</b>					
Yes	189	12.2	1354	87.8	X <sup>2</sup> (1)=15.680*
No	1138	9.1	11339	90.9	
<b>Abnormal mammogram</b>					
Yes	342	11.4	2646	88.6	X <sup>2</sup> (1)=16.327*
No	985	9	9980	91	
<b>First pregnancy</b>					
$\geq 30$	61	9.2	603	90.8	X <sup>2</sup> (1)=0.050
<30	1178	9.4	11291	90.6	

**Table 3:** The distribution of some characteristics of the women according to their regular mammography screening behavior.

\*p<0,001 was considered statistically significant.

\*\*p < 0.05 was considered statistically significant.

The factors affecting regular mammography screening behavior according to logistic regression analysis results are that when it was examined in terms of educational status, it was determined that the women receiving education for 11 years or less had regular screening 1.324 times more (95% CI 1.02-1.71) than those being illiterate, and there wasn't any significant difference between the regular mammography screening behavior of the women receiving education for 12 years or more compared to those being illiterate.

It is seen that the women who received HRT had mammography screening 1.481 times (95% CI: 1.24-1.76) more regularly than those who didn't receive HRT, the women who had a BC history in the family had mammography screening 1.613 times (95% CI: 1.37-1.89) more regularly than those who didn't have a BC history in the family, the women who practiced breast self-examination had mammography screening 1.221 times (95% CI: 1.07-1.39) more regularly than those who didn't practice breast self-examination, and the women who were detected with a suspicious formation as a result of mammography had mammography screening 1.263 times (95% CI: 1.09-1.45) more regularly than those who weren't detected with a suspicious formation (Table 4).

	B	SE	OR	95%	CI
Age	0.009	0.005	1.009	0.999	1.020
Marital status (Single)	0.505	0.367	1.657	0.808	3.400
Education (Illiterate)					
Literate	0.176	0.173	1.192	0.849	1.675
≤11	0.281	0.133	1.324**	1.021	1.718
University (≥12)	-0.027	0.251	0.973	0.595	1.592
Occupation (Unemployed )	0.219	0.139	1.245	0.948	1.634
Menopausal status					
Regular menstrual cycle					
Unregular menstrual cycle	-0.152	0.093	0.859	0.709	1.040
Postmenopausal	0.134	0.101	1.143	0.938	1.394
Birth number Not having birth					
1-2	-2.449	1.501	0.086	0.005	1.638
3-4	-2.302	1.496	0.100	0.005	1.876
≥5	-2.111	1.494	0.121	0.006	2.264
Breastfeeding status Yes	0.234	0.211	1.264	0.837	1.910
Using oral contraceptive drug Yes	0.124	0.068	1.132	0.990	1.294
Hormone replacement therapy Yes	0.393	0.091	1.481*	1.240	1.769
Breast cancer family history Yes	0.478	0.082	1.613*	1.373	1.896
Breast self-examination Yes	0.200	0.066	1.221**	1.072	1.391
The presence/suspicion gynecological cancer	0.108	0.099	1.114	0.918	1.353

Abnormal mammogram Yes	0.233	0.072	1.263*	1.096	1.456
First pregnancy ≥30 age	0.035	0.171	1.036	0.740	1.450

**Table 4:** The examination of the factors affecting regular mammography screening behavior with logistic regression analysis.

According to multivariate logistic regression analysis result, the factors affecting regular mammography screening behavior after the removal of HRT variable were determined as educational status, menopausal status, oral contraceptive use, BC history in the family, practicing breast self-examination, and the state of detection of a suspicious formation in the breast.

It was determined that the women receiving education for 11 years or less had mammography screening 1.358 times (95% CI: 1.05-1.75) more regularly than those being illiterate, and there wasn't any significant difference between the regular mammography screening behavior of the women receiving education for 12 years or more compared to those being illiterate.

It is seen that the women who were menopausal had mammography screening 1.237 times (95% CI: 1.02-1.5) more regularly than those menstruating regularly, the women who used oral contraceptive had mammography screening 1.150 times (95% CI: 1.00-1.31) more regularly than those who didn't use, the women who had a BC history in the family had mammography screening 1.603 times (95% CI: 1,36-1,88) more regularly than those who didn't have a BC history in the family, the women who practiced breast self-examination had mammography screening 1.244 times (95% CI: 1.09-1.41) more regularly than those who didn't practice, and the women detected with a suspicious formation as a result of mammography had mammography screening 1.247 times (95% CI: 1.08-1.43) more regularly than those who weren't detected (Table 5).

	B	SE	OR	95%	CI
Age	0.008	0.005	1.008	0.998	1.019
Marital status (Single)	0.478	0.366	1.612	0.786	3.306
Education (Illiterate)					
Literate	0.215	0.171	1.240	0.886	1.735
≤11	0.306	0.131	1.358**	1.050	1.755
University (≥12)	0.029	0.243	1.030	0.640	1.657
Occupation					
Unemployed/retired/ housewife	0.219	0.137	1.245	0.951	1.630
Menopausal status					
Unregular menstrual cycle	-0.140	0,097	0.869	0.719	1.051
Postmenopausal	0.213	0.098	1.237**	1.021	1.500
Birth number Not having birth					
1-2	-2.604	1.464	0.074	0.004	1.304
3-4	-2.431	1.459	0.088	0.005	1.534
≥5	-2.240	1.457	0.106	0.006	1.851



Breastfeeding status Yes	0.178	0.203	1.195	0.802	1.781
Using oral contraceptive Yes	0.140	0.067	1.150**	1.008	1.312
Breast cancer family history Yes	0.472	0.081	1.603*	1.367	1.880
Breast self-examination Yes	0.218	0.066	1.244*	1.093	1.414
The presence/suspicion gynecological cancer Yes	0.184	0.095	1.202	0.998	1,448
Abnormal mammogram Yes	0.221	0.072	1.247**	1.083	1.435
First pregnancy ≥30 age	0.024	0.171	1.024	0.733	1.433

**Table 5:** Regression analysis results of the factors affecting regular mammography screening behavior after the removal of HRT variable.

\* $p \leq 0,001$  was evaluated at significance level. \*\*  $p \leq 0,05$  was evaluated at significance level.

Abbreviations: OR: Odds ratio, 95% CI: 95% confidence interval.

## Discussion

It was determined in our study that the rate of the women having regular screening was rather low. Onset of BC is at early ages in Turkey and regular mammography has a strategic role in early detection of BC [5]. For these reasons, this finding proves the necessity of encouraging the women to have mammography screening. It was found in the study of Özmen that the rate of BC detected at Stage 1 at the time of diagnosis in Turkey was 27% [3].

According to chi-square test results, an statistically significant difference was observed between the educational status, parity, menopausal state, HRT use, BC history in the family, practicing breast self-examination, suffering from a gynecological disease, detection of a suspicious formation in mammography and having regular mammography screening behavior of the women in our study. In further analysis, it was proved that education, HRT use, detection of a suspicious formation in mammography, practice of breast self-examination, and oral contraceptive use were important predictors of regular mammography screening behavior.

It has been reported that according to some western countries, the onset of BC in Turkey was at early ages (40% of them under 50 years old), and cancers were detected at advanced stage [3]. It was reported that the mammography screening range was once in two years for the women aged 40-69 years [11]. Within the scope of record information evaluated in our study, it was found that the mean age of the women having regular screening ( $51.02 \pm 7.69$ ) was higher than those having irregularly screening for mammography ( $50.44 \pm 8.22$ ), and the difference was significant according to t-test, but both in regression analysis made without HRT variable and made with all variables, age wasn't a factor affecting the regular mammography screening behavior. Different results were found in different studies. While age was emphasized as an important factor affecting regular mammography screening behavior in some studies [12-15]. It was proved that age wasn't a determinant factor in some studies [16-19]. Shah et al. (2014)

associated the reason why different results were found about age variable in different studies with the evaluation of different age groups in different studies [20]. It can be said that our analysis studies don't resemble the study results indicating that as the age increased, the rate of having regular mammography screening decreased [21-23]. The reason of this can be explained by the fact that the age of the women in our study was close to each other. It can also be explained by the fact that there wasn't a significant difference between age and regular mammography screening behavior, and age range was close to each other and the acceptance of termination age of mammography as 69 years in Turkey [11].

When the data concerning the chi square analysis result in our study was examined in terms of education, it was determined that regular mammography screening behavior. Of the women receiving education for 11 years or less was at higher levels compared to other educational levels. It was determined in the regression analysis that the women receiving education for 11 years or less had regular mammography screening more regularly changing between (1.324-1.315times) than those being illiterate, and there was a statistically significant difference between the women being at different education levels in terms of regular mammography screening behavior. It was determined that as the education levels of the women participating in the study of Demir et al. increased, the rate of having mammography screening in the last two years increased [ $\chi^2(4)=16.231$ ,  $p=0.003$ ] [24]. Dinçel et al. conducted a survey with 300 women coming for having mammography screening, and they determined that 69% of the women received education for 11 years or less, 18.7% of them were illiterate, 7.3% of them were literate, and 4.3% of them received education for 12 years or more [25]. Sadıkoğlu et al. determined in their study that the rate of having mammography screening was higher in university graduates than those being at other educational levels. It was stated in the studies carried out abroad that as the education level increased, regular mammography screening behavior increased [26-30]. It was determined in our study that the individuals were receiving education for 11 years or less had mammography screening more regularly than those receiving education for 12 years or more. It is seen that our study results didn't conform to other study results showing that as educational level increased, regular mammography screening behavior increased [15,27-32]. The reason of this difference can be explained by the fact that large majority of the women (50.2%) that received education for 12 years or more and that we examined within our study were working in a job.

Our finding showing that the rate of having regular screening was lower at women working in job than the women not working in a job also supports our foresight. Lee and Kim stated that the women working part-time had mammography screening more regularly than the women working full-time. In the study of Gierisch et al. conducted with 576 samples aged between 43 and 49, 40.7% of the women stated that not having enough time was an obstacle to having mammography screening. When the findings in chi square analysis are evaluated, it is seen that the rate of having regular screening is at rather low level in the groups which the women are

literate but they don't have a formal education, and the women are illiterate. When this finding is taken into consideration, it can be said that the education is an important factor affecting the regular mammography screening behavior, but the education level isn't a sufficient factor alone, and job status is also an effective factor.

It was determined in the records examined within our study that more than half of the women were menopausal (52%), and the menopausal women had regular screening significantly more (OR: 1.237; %95 CI: 1.02-150) than the women who weren't menopausal. It was found in the study of Koralp-Durdiyeva et al. that 784 (36%) of 2136 women participating in the early diagnosis and screening program carried out between the years July 2010 and July 2013 in Near East University Hospital in Turkish Republic of Northern Cyprus were in premenopausal period, and 1352 (64%) of the women in this program were in postmenopausal period [33]. Lee and Kim (2015) determined that 59.6% of the women being menopausal had regular screening, 33% of the women who weren't menopausal had regular screening, and menopause was one of the important period in women's life, and therefore, menopause was an important factor affecting regular mammography screening behavior, and it increased the awareness of health.

It is seen that the more women got healthcare (using HRT, detection of a suspicious formation in mammography, having a history of BC in the family), the more women had regular screening. It is thought that the women being in touch with a doctor for any reason about health maintain their regular mammography screening behavior on doctor's probable recommendation. It was emphasized that the women being in touch with a doctor had more regular mammography screening [34], and the reason of this could be arisen from the encouragement of the doctor to the women to have mammography screening [12,34]. Coughlin and et al. reported women who had a usual source of health care were more likely to have been screened. Lee and Kim (2015) emphasized in their study that HRT use was an important factor increasing the awareness of health and affecting regular mammography screening behavior. It was determined in our study in accordance with other study results [32,34-37]. That HRT use was an important factor affecting regular mammography screening behavior. It is seen in the logistic regression analysis that the women receiving HRT had regular mammography screening 1,481 times 95% CI: 1.24-1.76) more regularly than those who didn't receive HRT.

It was emphasized in a study that the women having a history of BC in their family had mammography screening 1.98 times (95% CI: 1.20-3.25) more regularly than those not having a history of BC in their family, and the women being detected with a suspicious formation in the mammography had mammography screening 1,47 times 95% CI: 1-2.16) more regularly than those not being detected with a suspicious formation in the mammography [6]. It was also determined in other studies that the women having a history of BC in their family and/or having abnormal mammography findings had mammography screening more regularly [38]. Our findings are compatible with these results. Existence of BC history in the family is very important

risk factor [15]. It is seen in the logistic regression analysis that the women being detected with a suspicious formation in the mammography had mammography screening 1.263 times (95% CI: 1.09-1.45) more regularly than those not being detected with a suspicious formation in the mammography. It was determined in the study of Sadıkoğlu et al. that the women having a history of BC in their family had mammography screening more regularly. The rate of participation of the women having a history of BC in their family in mammography screening increased double in the study of Carney et al. [39]. 91% of the women having a history of BC in their family participated in mammography screening in the study of Bostean et al.

It is thought that having a history of BC in the family and having abnormal mammography findings increased the anxiety about BC and prompted the women to have mammography screening regularly. It was also determined in our study that 61% of the women having a history of BC in their family practised breast self-examination. Consedine et al. [40], emphasized that on the one hand, anxiety and fear could pose an obstacle to mammography screening, but on the other hand, they were an encouraging factor for regular mammography screening.

There were 13859 women consulting cancer early diagnosis, screening and training center for mammography and we knew their parity. It was determined that 8.8% of 13859 women gave birth five times or more, 33.4% of them gave birth three or four times, 53.9% of them gave birth once or twice, and 3.9% of them were nulliparous. The difference between logistic regression analysis result and chi square analysis result revealing that there was a positive correlation between parity and regular screening can be explained with educational level [41]. It was determined in our study that the large majority of the women receiving education for 12 years or more and for 11 years or less gave birth once or twice, and the rate of giving birth three or four times and/or five or more times was high in the women at other educational levels.

It was determined in our study that 14.2% of the women having regular mammography had gynecological Ca or suspicion, the rate of having regular screening of the women having gynecological Ca or Ca suspicion was higher, and this situation was statistically significant ( $p < 0.001$ ). According to logistic regression analysis result, the existence of gynecological Ca or Ca suspicion isn't among the factors affecting regular mammography screening behavior. The reason of this can be explained by the fact that they could be sustaining their treatment in secondary and tertiary hospitals due to their existing diseases.

As the study was carried out retrospectively, only the existing records were evaluated, but some missing information in the files couldn't be evaluated. Another restriction of the study is that the reasons why the women didn't want to have regularly mammography couldn't be questioned. Also, the independent variables in the study consisted only of the existing records in the files. This situation caused the researcher not to reach different information. Therefore, we think that one-to-one survey should be

conducted.

## Conclusion

The results got from this study are the ones;

- The rate of the women having regular screening is rather low. Education is a factor affecting regular screening mammography behavior, but regular screening mammography behavior doesn't increase in parallel with the increase of education level. The majority of the women whose education level is high work in a job. The rate of having regular screening in working women is lower than those not working.
- The women going to healthcare centers more for any reason (menopause, receiving HRT, not menopausal, using oral contraceptive, and detection of a suspicious formation in mammography) have mammography screening more regularly. The women having a history of BC in their family have mammography screening more regularly than those not having a history of BC in their family.

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