

RESEARCH COMMUNICATION

Determination of The Anxiety Level of Women Who Present for Mammography

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Abstract

Objective: This paper was to examine the role of anxiety in mammography screening. Breast cancer screening with mammography has been shown to be effective for preventing breast cancer death. However mammography screening can be harmful to women. One of the major problems is anxiety or lack of peace of mind in mammography screening. **Methodology:** This study was conducted between November 3, 2007, and December 30, 2007, in Ordu Maternity and Childbirth Hospital. 93 women participated in the study. A 23-item questionnaire and the 20-item State Anxiety Inventory, developed by Spielberger et al. were completed by the participants. All numerical values were given as average \pm standard deviation; $p < 0.05$ was accepted for level of significance. **Results:** The average age of the participants was 47.83 ± 7.50 , the average age at marriage was 20.03 ± 4.18 , the average birth number 2.91 ± 1.21 , and the average age at menopause was 46.10 ± 4.70 . The average anxiety level was found to be 46.20 ± 4.9 . Significant differences ($p < 0.05$) were found between education level, age at marriage, status of doing breast self examination, status of having a mammography for a breast-related complaint, and the number of mammograms done. **Conclusion:** It was determined that women who had mammography had a moderate level of anxiety.

Keywords: Mammography - anxiety - mammography screening

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Introduction

Breast cancer is the most common type of cancer in women after skin cancer. Breast cancer is also the second leading cause of death from cancer in women, following lung cancer (Alimoğlu et al., 2004). In previous studies conducted in the US it has been predicted that approximately one in every eight women will be diagnosed with breast cancer in their lives and one in every 30 women will die from breast cancer (Smith-Bindman et al., 2000; Humphrey, 2002; Tabar, 2003; Alimoğlu et al., 2004; Jemal et al., 2007). As with many other types of cancer when breast cancer is found at an early stage during commonly used screening for lumps, when it is small and has not yet spread, there is an increase in survival and decrease in mortality (<http://www.cancer.org/downloads/STT/CAFF2003BrFPWSecured.pdf>). Mammography is the most effective diagnostic method for breast cancer screening in the early stage (Keemers-Gell, 2000). Illness is a source of stress whatever the age. Everyone who has a health problem experiences anxiety, which is a normal response when facing danger. Anyone who comes to a health care facility with any health problem may be anxious for many reasons, such as, being in an unfamiliar environment, having to relate with strangers, being spoken to with medical terminology by health care personnel, seeking diagnosis and a cure. (<http://www.cancer.org/>

[downloads/STT/CAFF2003BrFPWSecured.pdf](http://www.cancer.org/downloads/STT/CAFF2003BrFPWSecured.pdf)).

Undergoing certain diagnostic procedures, such as mammography, may cause some people to think about serious results and increase their anxiety. It has been shown that women who had recently felt tense and nervous or had a fear of breast cancer diagnosis had higher anxiety levels. Mammography is the most reliable method to diagnose breast cancer. When used alone, its reliability is 90%; used with clinical examination it is 95%. It can be used to diagnose breast cancer at an early stage. The American Medical Center recommends that women with no symptoms have their first mammogram at the age of 40 (earlier if they have a positive family history for cancer), and that they have a mammogram once every one to two years (per physician's recommendation) between the age of 40 and 50, then once a year after age 50 (Mandelblatt, 2000; O'Malley, 2001). Factors associated with screening mammography use are multiple and complex. Historically, socioeconomic barriers have been described as having a major impact on utilization (Hsia et al., 2003; Kagay et al., 2006). Other factors, such as access to screening, breast disease history lifestyle issues, and personal beliefs, have also been associated with mammography use in the literature but are less well studied (Austin et al., 2002; Andersen et al., 2003; Sambamoorthi and McAlpine, 2003; West et al., 2003).

One of the important reasons for patients' anxiety

is a lack of knowledge about the method and how it diagnoses illness. Sakan and colleagues pointed out that it is necessary to inform patients about diagnostic procedures to prevent patients from worrying unnecessarily. Anxiety has been determined to be a common problem during all kinds of medical diagnosis, treatment and care. Although it is known that patients have the right to be informed about diagnostic procedures and treatment modalities, education is often ignored. It is important to inform patients to reduce their anxiety level and to prevent them from developing negative defenses (Sakan et al., 2003). For this reason, when patients are prepared for special procedures like mammography, it is important to determine their anxiety level and influential factors.

Materials and Methods

This cross-sectional descriptive study was conducted between November 3, 2007, and December 30, 2007, at Ordu Maternity Hospital Mammography Unit, with 59 women who had appointments to have mammography.

A 23-item questionnaire and the 20-item State Anxiety Inventory, developed by Spielberger et al. were used for data collection. They were completed by the participants using a face to face interview method. On the questionnaire form there are 10 questions about their opinions about mammography. The State Anxiety Inventory determines individuals' feelings in certain conditions and at that moment. Its translation into Turkish and reliability and validity study was done by Öner and Le Compte in 1989. On this inventory there are 40 statements about how the individual feels. The first 20 items measure the situation-related anxiety level with 4 choices. These choices are: None (1), Some (2), A lot (3), Always / Completely (20). In this section there are direct and reversed statements. By subtracting the points of reversed statements from direct statements a value is obtained and added to 50 (constant value) to obtain the state anxiety score. The results are interpreted as having no anxiety for a score of 0-19, mild anxiety for a score of 20-39, moderate anxiety for 40-59, severe anxiety for 60-79, and in need of professional help for a score 80 or higher.

To evaluate the resulting data the Statistical Package for the Social Sciences (SPSS), version 11.5, was used. Percentage, arithmetic average, Mann-Whitney U test and Kruskal-Wallis test were used to analyze the data. All numbers were given as average value \pm standard deviation; $p < 0.05$ was accepted for level of significance.

Results

The average age of the women who came to have mammography was 47.8 ± 7.50 , their age at marriage was 20.0 ± 4.18 , and their age at menopause was 46.1 ± 4.70 . A statistically significant difference was found between their age at marriage and their anxiety level ($p < 0.05$). The number of abortions was determined to be 1.47 ± 0.61 and of births was 2.9 ± 1.21 . Half (51.67%) of the women had graduated from primary school, 90% of them were married. A statistically significant link was found between educational level and anxiety level ($p < 0.05$) (Table 1).

Table 1. Comparison of Anxiety Level with Sociodemographic Characteristics of the Women about to have Mammography

Sociodemographic Characteristics	X \pm SD	R	p
Age	47.83 \pm 7.50	.156	.136
Age at Marriage	20.03 \pm 4.18	-.212	.041
Age at Menopause	46.10 \pm 4.70	.137	.300
Birth number	2.91 \pm 1.21	-.017	.871
Abortion number	1.47 \pm 0.61	-.031	.861

Education	No	%	X \pm SD	p
Literate	26	28.0	48.69 \pm 4.37	
Primary school	48	51.6	44.97 \pm 4.86	
Secondary school	7	7.5	45.42 \pm 5.31	.007
High school	9	9.7	44.44 \pm 4.50	
University	3	3.2	42.33 \pm 2.51	

Marital status	No	%	X \pm SD	p
Married	90	96.8	46.23 \pm 5.00	.802
Single	3	3.2	45.33 \pm 0.57	

Of the women who breastfed their children 34.4% did so for 0-6 months and 27.8% for 7-12 months. More than half (64.8%) did not take hormone replacement therapy in menopause. In this study 11.8% of the women's close relatives had breast diseases, 62.4% did breast self examinations (BSE), and 46.2% had a breast complaint. There was a statistically significant difference between BSE status and anxiety ($p < 0.05$) (Table 2).

Of the women presenting for mammography 58.1% came at their physician's request, 41.8% on their own;

Table 2. Comparison of Influential Factors for Breast Diseases and Anxiety Level of Women who had a Mammography

In Breast Diseases Effecting Factors	No	%	X \pm SD	p
Duration of breastfeeding*				
0 - 6 months	31	34.4	44.93 \pm 4.16	
7 - 12 months	25	27.8	45.52 \pm 5.87	.142
13 - 18 months	15	13.7	47.26 \pm 4.04	
19 - 24 months	19	24.1	48.05 \pm 4.80	
Took hormone replacement therapy in menopause*				
Yes	21	35.2	45.23 \pm 3.7	.164
No	38	64.8	47.51 \pm 5.72	
Had close relative with breast disease				
Yes	11	11.8	48.00 \pm 3.03	
No	82	88.2	47.51 \pm 5.72	
Did Breast Self examination				
Yes	58	62.4	46.53 \pm 4.19	
No	21	21.5	44.25 \pm 6.53	
Irregularly	58	16.1	47.53 \pm 4.67	.035
Had a breast-related medical complaint				
Yes	43	46.2		.621
No	50	53.8		

Table 3. Comparison of Mammography-related Information with Average Anxiety Level

Mammography-related information	No	%	X±SD	P
Mammography recommendation				
On own	39	41.9	46.84±4.90	.288
Physician's suggestion	54	58.1	45.74±4.93	
Knowledge about having mammography				
Informed	52	46.2	46.37±5.13	.878
Not informed	41	44.1	46.09±2.30	
Partly informed	9	9.7	45.88±3.91	
Information resources about mammography				
Physician	8	18.6	49.00±5.07	.027
Nurse	3	7.0	43.33±2.30	
Television	8	18.6	42.00±5.07	
Experts	2	4.7	52.00±0.00	
Friends	22	51.2	46.86±4.58	
Opinions about radiation received mammography				
Yes, has an effect	35	37.6	45.97±4.40	.124
No effect	34	36.6	47.47±5.09	
Partly affects	24	25.8	44.75±5.13	
Opinions about diseases that are diagnosed from mammography				
Cancer, tumor	40	43.0	47.00±4.40	.047
Cyst	5	5.4	44.60±4.03	
Menopause	6	6.5	42.25±4.31	
No answer	42	45.2	42.20±5.53	
Number of mammograms done				
1	42	45.2	45.09±3.76	.038
2	32	34.4	46.90±6.04	
3	10	10.8	46.00±4.29	
4	4	4.3	50.00±6.16	
5	5	5.4	48.20±4.66	

46.2% had knowledge about mammography and had received this information from their friends. In this study 37.6% the women thought that the radiation from mammography could be harmful to them. In response to the question about what was diagnosed with mammography, 45.2% had no idea and 43.0% thought that tumors were diagnosed. More than half (54.5%) of the women were having their first, and 34.4% their second mammogram. Statistically significant differences were found among the information sources about mammography, the illnesses that are diagnosed by mammography, the number of mammography and anxiety ($p < 0.05$) (Table 3).

The average anxiety for women having a mammogram in this study was found to be 46.2±4.92, which is a moderate level of anxiety.

Discussion

Mammography is an ideal method for regular screening programs for early diagnosis of breast cancer.

These screening programs are known to lengthen survival and decrease mortality. (Smith-Bindman et al., 2000; Humphrey et al., 2002; Tabar and Dean, 2003; Jemal et al., 2007). The United States Food and Drug Administration (FDA) reports that mammography is able to find 85 to 90% of breast cancer in women over 50 years old and can discover a lump up to two years before it can be felt (Naggar et al., 2009). To be able to get positive results from screening programs it is necessary to have a high rate of participation. However some women avoid these types of screening programs because they consider mammography to be a painful and uncomfortable method or are afraid that they will be diagnosed with breast cancer (Mainiero et al., 2001; Brunton et al., 2002; Brunton et al., 2005). It was determined in our study that 53.8% of the women did not have a breast-related complain, 58.1% came for mammography at their physician's recommendation, 43.0% were afraid that a breast mass would be found in the mammography results and that these women had a higher anxiety average score. In a study conducted by Alimoğlu et al. it was determined that participants' being more concerned about themselves recently and being afraid of being diagnosed with breast cancer were factors which increased the state anxiety level. Similar findings have been obtained in other studies (Mainiero et al., 2001; Alimoğlu et al., 2004; Brunton et al., 2005; Schueler et al., 2008).

Because breast cancer is so significant of a problem in women it is very important that women over 40 years of age get a mammogram once a year for early diagnosis. Women have to request to have this screening test. However 58.1% of the women participating in our study came from mammography at the recommendation of their physician. For this reason it is necessary to explain the importance of this procedure to women with educational programs (Mainiero et al., 2001; Brunton and Thomas, 2002; Nystrom et al., 2002; Tabar and Dean, 2003; Brunton et al., 2005).

The level of anxiety about mammography screening was found to be higher in women with low educational levels and this difference was found to be statistically significant. Similar results were reported in the study by Brunton and colleagues (Mainiero et al., 2001; Alimoğlu et al., 2004; Brunton et al., 2005).

Women with a family history of breast cancer in this research were more likely to report higher levels of worry about breast cancer than those women without a family history of breast cancer, but the difference between the two groups was not found to be statistically significant. Similar results were reported in the study by Brunton and colleagues (Brunton and Thomas, 2002; Brunton et al., 2005).

As the number of mammograms done increased the anxiety level increased and this difference was found to be statistically significant. The reason for this may be that physician's recommending that women have regular mammography screening may have made the women think that this was being done because there was a suspicion of cancer (Mainiero et al., 2001; Brunton and Thomas, 2002; Alimoğlu et al., 2004; Brunton et al., 2005; Schueler et al., 2008). Because high levels of worry about breast

cancer may already be prevalent in the at risk population regardless of whether they are currently undergoing screening mammography, and this may deter some women from attending, further research is required to identify specific and appropriate interventions to deal with this anxiety.

From the results of this study it has been determined that women having mammography have a moderate level of anxiety. Statistically significant differences were found for age at marriage, education level, status of doing BSE, information resources, knowledge about the illnesses that mammography detects, and the number of mammograms ($p < 0.05$).

We did not find any significant differences between the anxiety scores of the informed (41.4+7.9) and uninformed (40.9+7.7) women, but the pain level was significantly lower in the informed group (16.5+22.4) than in the uninformed group (24.5+28.1). There was no statistically significant relationship between the anxiety and pain levels.

Overall, however, contrary to suggestions from other researchers, this study does not demonstrate that screening mammography raises the ongoing level of anxiety in this population of women. The reverse had been shown. The majority of women felt reassured following their mammogram, and levels of anxiety about breast cancer were diminished.

Nurses can play a significant role in breast cancer screening programs. They can evaluate participants' level of anxiety at an early stage and offer appropriate support. They can also ensure the follow up and personalized support required while a patient awaits a diagnosis.

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