



Original Research / Özgün Araştırma

Mammography-Related Pain and Anxiety in Turkish Women: A Cross-sectional Study

Türk Kadınlarında Mamografiye Bağlı Ağrı ve Anksiyete: Kesitsel Bir Çalışma

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ABSTRACT

Objective: This study was carried out to determine mammography-related pain and anxiety level among women. **Methods:** A cross-sectional study conducted was on 222 women at the Mammography Unit of Department of Radiology in a tertiary-care hospital in Turkey. Visual Analog Scale and State-Trait Anxiety Inventory and a survey form were used in the study. **Results:** Women in this study was determined that 70.7% experienced pain during mammography. About a quarter of women describe mammography as a painful procedure. Mammography-related pain level was found to be at the 38.40 ± 22.46 and "moderate" level among the participants. It was determined that women during mammography experienced mean 40.0 and "mild" anxiety level. There was no statistically significant difference between the frequency of pain and anxiety. **Conclusion:** It is the important duty of health professionals to minimize the pain experienced by women during mammography and to prevent pain from being an obstacle to mammography.

Key words: Mammography, pain, anxiety, women

ÖZET

Amaç: Bu çalışma kadınlarda mamografi ile ilişkili ağrı ve anksiyete düzeyini belirlemek amacıyla yapılmıştır. **Yöntem:** Kesitsel olan bu çalışma Türkiye'de üçüncü basamak bir hastanede Radyoloji Bölümü Mamografi Birimi'nde 222 kadının katılımı ile yapılmıştır. Çalışmada Görsel Analog Skala ve Durumluk-Sürekli Kaygı Envanteri ile bir anket formu kullanılmıştır. **Bulgular:** Bu çalışmada, kadınların % 70,7'sinin mamografi sırasında ağrı yaşadıkları belirlenmiştir. Kadınların yaklaşık dörtte biri mamografiyi acı verici bir prosedür olarak tanımlamaktadır. Bu çalışmada kadınlarda mamografiye bağlı ağrı düzeyinin $38,40 \pm 22,46$ ve "orta" düzeyde olduğu görülmüştür. Mamografi sırasında kadınların ortalama 40,0 ve "hafif" düzeyde kaygı yaşadıkları belirlenmiştir. Ağrı sıklığı ile kaygı arasında istatistiksel olarak anlamlı bir fark bulunmamıştır. **Sonuç:** Mamografi sırasında kadınların yaşadığı ağrıyı en aza indirmek ve ağrının kadınlar için mamografi çekimine engel olmasını önlemek sağlık profesyonellerinin önemli görevidir.

Anahtar kelimeler: Mamografi, ağrı, kaygı, kadın

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INTRODUCTION

According to global cancer statistics made worldwide, among females, breast cancer is the most commonly diagnosed cancer and the leading cause of cancer death.¹ Breast cancer is the most common cancer among women in Turkey (40,7%).² Early diagnosis of breast cancer reduces the mortality rate. Mammography is one of the important diagnostic tools used in breast cancer screening.³ Mammography is the most convenient method for screening with features that are easy to access, as well as being the most successful imaging method in early diagnosis. The American Cancer Society suggests taking mammograms for women ages 40 to 44. If they age 45 to 54 should get mammograms every year for risk of breast cancer.⁴ National Turkish Guide suggests the start of screening at the age of 40 and ends at the age of 69 and applied once in two years.² However, studies show that a majority of women do not routinely have mammography.⁵⁻⁸ The reasons for this are radiation exposure⁸, fear of cancer^{8,9}, low level of education^{8,10}, and pain⁸⁻¹².

The most important factor obstacle to the mammography of women is defined as pain.¹³ Compressing breasts during mammography is a necessary process to reduce the dose of radiation and improve image quality. Most women describe that they experience pain during this compression procedure.^{3,14} Sensitivity in breasts before mammography, breast cancer history in the family, high level of education, carelessness of the medical staff taking mammograms, previous pain experience related to mammography increase the level of pain during mammography.³

In addition to the many factors that can affect the pain that occurs during mammography, the presence of pain expectancy is considered a powerful source of anxiety that can affect the pain threshold.¹⁵ In a study have been found the level of mammography related-pain experienced by women with high anxiety was also high.¹⁰ Health professionals should identify and try to eliminate factors that deter women from mammography. This study was carried out to determine mammography-related pain and anxiety level among women.

METHODS

A cross-sectional study was conducted at the Mammography Unit of Department of Radiology in of tertiary hospital in Turkey. This study was conducted with 222 women who had mammograms between November 17, 2014 and January 16, 2015. The sample size was determined as 222 participants according to the regression analysis performed in the G-power statistical software with a significance level of 0.05, 85% power, 0.15 effect size. Women who had vision-hearing problems were excluded from the study.

In this study, Visual Analog Scale (VAS) and State-Trait Anxiety Inventory (STAI I-II), and a survey form was used as the data collection tools. The survey form was prepared by using the literature appropriate for the study. The survey form includes 20 questions about some socio-demographic characteristics of women (age, education, work, and marital status), knowledge and experience about mammography (The reason for getting mammography, whether she get regular mammography, her feelings and thoughts about mammography, whether there is a family history of breast cancer, etc.).

Visual Analog Scale of Pain: VAS was used in the study to measure the severity of pain felt by women during mammography. VAS is a horizontal or vertical line mostly 100 mm in length that starts with “0” “no pain” and ends with “100” “unbearable pain”, and the patient himself or herself marks his or her current state on this line. The pain level of those who marked scores of 0-25 on VAS was rated “mild”, 26-50 “moderate”, 51-75 “severe” and 76-100 “very severe”.¹⁶

State-Trait Anxiety Inventory: This inventory was developed by Spielberger et al. 1970 and the validity and reliability study in Turkey was conducted by Öner and Le Compte. These are state and trait anxiety inventories, which consist of a total of 40 questions. In the inventory, state anxiety measures how the person feels at a given moment and under conditions at that moment. Trait anxiety, on the other hand, requires the individual to describe how he/she generally feels. Each question has four options, and the total score of the inventory is between 20-80 points. The anxiety levels of those who marked total scores of 0-36 on the inventory were rated “none anxiety”, 37-42 “mild anxiety”, 43-80 “severe anxiety”.¹⁷

Procedure: First in this study, after the information about the purpose of the study was given to the women who applied to the informed consent of those who accepted to participate in the study was obtained. The survey form and STAI I-II were filled by the women themselves under observation in the waiting room for mammography screening. This process took approximately 20-25 minutes. Later the mammography of the women was taken by the radiology technician. After mammography, women were asked whether they had pain. For women with pain, a description of VAS was given and the participants were requested to mark the pain level on the scale. In the study were screened for mammography by the same radiology technician.

Data analysis was done by using SPSS (version 21.0). The chi-square test was used for the distribution of the study group subjects with and without pain during mammography according to their knowledge and experience of

mammography. The mean pain and anxiety scores were provided alongside the medians and interquartile ranges. Mann-Whitney U test was used for mean scores of the STAI-I and STAI-II for the study group subjects with and without pain complaints during the mammography. Frequency distribution was used for sociodemographic characteristics, pain level, pain types in the group. Statistical significance was accepted as $p < 0.05$.

The ethics committee permission for the study was approved by the Clinical Investigation Ethics Board of the Faculty of Medicine at Eskişehir Osmangazi University (Decision Number:80558721/236, Date: September 03, 2014).

RESULTS

The mean age of the women was 50.6 ± 8.3 years. The distribution of women's sociodemographic characteristics is given in Table 1.

Table 1. Distribution of women sociodemographic characteristics

Socio-Demographic Characteristics	n	%
Age (Mean±SD)(min-max) (50.6±8.3)(30-75)		
Education Status		
Primary school	92	41.5
Secondary school	64	28.8
University	66	29.7
Marital Status		
Married	178	80.2
Single	44	19.8
Working Status		
Working	56	25.2
Not working	166	74.8
Income Status (in her statement)		
Bad	11	4.9
Middle	164	73.9
Good	47	21.2
Total	222	100.0

Women were 70.7% reported that they had pain during mammography. The VAS scores of women with pain ranged from "0 to 100 mm" with an average of 38.40 ± 22.46 points. In this study, 48.4% of the women who complained of pain during the mammography reported that the severity of pain was "moderate" and 10.8% reported "very severe". Pain type of those in the women who had pain during mammography screening 57.9% of the patients with pain during mammography had pain in a crushing manner (Table 2).

It was seen that previously taking mammography, the reason for mammography, the pre-knowledge about mammography, and the fear of having mammography did not affect the frequency of pain in this study (for each, $p > 0.05$). However, it was found to be significant that the frequency of mammography pain was higher among those who reported that they felt pain during mammography before and evaluated mammography as painful and uncomfortable and reported sensitivity in the breast before mammography (for each; $p < 0.05$) (Table 3).

Table 2. Distribution of women with and without pain complaints during the mammography and complained of pain during the mammography according to pain severity and pain types

	n	%
Pain		
None	65	29.3
Existent	157*	70.7
Total	222	100.0
Pain level (VAS) (Mean±SD)(38.40±22.46)		
Mild	41	26.1
Moderate	76	48.4
Severe	23	14.7
Very severe	17	10.8
Total*	157	100.0
Pain type		
Burning	13	8.3
Stinging	7	4.5
Crushing	91	57.9
Throbbing	6	3.8
Tingling	26	16.5
Sharp	7	4.5
Unbearable	7	4.5
Total*	157	100.0

*Number of women with pain

Table 3. Distribution of women with and without pain during mammography according to their knowledge and experience with mammography

Knowledge and experience with mammography	Mammography related-pain			p*
	Existent n (%)‡	None n (%)‡	Total n (%)‡‡	
The presence of breast cancer in the family				
Existent	36 (73.5)	13 (26.5)	49 (22.1)	
None	121 (69.9)	52 (30.1)	173 (77.9)	0.763
Presence of breast-related disease				
Existent	34 (75.6)	11 (24.4)	45 (20.3)	
None	123 (69.5)	54 (30.5)	177 (79.7)	0.539
Reason for getting mammography				
Physical examination finding (mass)	35 (74.5)	12 (25.5)	47 (21.2)	
For control purposes	122 (69.7)	53 (30.3)	175 (78.8)	0.649
Status of getting mammography for the first time				
Yes	27 (73.0)	10 (27.0)	37 (16.7)	
No	130 (70.3)	55 (29.7)	185 (83.3)	0.895
Status of getting mammography regularly every year				
Yes	78 (67.8)	37 (32.2)	115 (51.8)	
No	79 (73.8)	28 (26.2)	107 (48.2)	0.326
Status of getting information about mammography before				
Yes	123 (69.5)	54 (30.5)	177 (79.7)	
No	34 (75.6)	11 (24.4)	45 (20.3)	0.539
Fear of mammography				
Existent	64 (75.3)	21 (24.7)	85 (38.3)	
None	93 (67.9)	44 (32.1)	137 (61.7)	0.238
Feeling pain during previously mammography**				
Existent	79 (83.2)	16 (16.8)	95 (51.4)	
None	51 (56.7)	39 (43.3)	90 (48.6)	0.000
Comment on of mammography procedure				
Painful	50 (86.2)	8 (13.8)	58 (26.1)	
Uncomfortable	72 (72.0)	28 (28.0)	100 (45.0)	0.001
Comfortable	35 (54.7)	29 (45.3)	64 (28.9)	
Presence of sensitivity in breasts before mammography				
Existent	45 (84.9)	8 (15.1)	53 (23.9)	
None	112 (66.3)	57 (33.7)	169 (76.1)	0.015
Status of taking analgesic before mammography				
Yes	12 (66.7)	6 (33.3)	18 (8.1)	
No	145 (71.1)	59 (28.9)	204 (91.9)	0.901
Status of menopause				
Yes	98 (68.1)	46 (31.9)	144 (64.9)	
No	59 (75.6)	19 (24.4)	78 (35.1)	0.302
Total	157 (70.7)	65 (29.3)	222 (100.0)	

‡Percentage by row sum, ‡‡Percentage by column sum.

*The chi-square test

**The number of those previously getting mammography.

In the women, no difference was found between the mean scores of the STAI I-II (for each,

$p > 0.05$) of those with and without pain during mammography (Table 4).

Table 4. Mean scores of the State and Trait Anxiety Inventory for women with and without pain complaints during the mammography

	n (%)	STAI-I Median (%25-%75)	STAI-II Median (%25-%75)
Pain			
None	65 (29.3)	43.0 (23.0-75.0)	48.0 (39.0-65.0)
Existent	157 (70.7)	39.0 (25.0-77.0)	49.0 (35.0-75.0)
Total	222 (100.0)	40.0 (23.0-75.0)	48.5 (35.0-75.0)
p*		0.053	0.828

*Mann-Whitney U test

DISCUSSION

Mammography is the most effective current method for the early detection of breast cancer. However, studies show that most women do not routinely take mammography.⁵⁻⁸ Pain has been reported to be the most important cause.¹³ In this study, it was determined that 70.7% of the women experienced pain during mammography. In some studies conducted in various countries, it has been reported that the frequency of pain experienced during mammography varies between 57.0% to 92.3%.^{10,18-23} Alimoglu et al. (2004) reported in their study conducted in Turkey that the frequency of pain during mammography was 53.5%.²⁴ It can be said that among the causes of different outcomes reported in various studies, women may have past experiences of pain based on different socio-cultural characteristics.

In this study, the intensity of pain in women who complained of pain during mammography was found to be at the "moderate" level. The pain intensity was within the range of 20-38 mm in other studies in which VAS was used.^{8,19,24-28} With these results, it can be said that mammography application in general causes moderate pain to women. In the current study, 57.9% of the women stated that the pain they experienced during mammography was in a "crushing" manner. Compression on the breast during mammography is necessary for the scan.²⁹ Compression made to the breast tissue may have caused the pain type to be expressed as "crushing" by women.

In this study, it was found that the frequency of mammography pain was higher among those who reported that they felt pain during their previous mammographic application. The painful experience in women

who had mammography before causes more pain in the current mammography scans. Women's coming to take mammography knowing that they will experience pain may have a negative impact on their sensation of pain in this process. Armstrong et al. (2007) attributed pre-mammography prejudice and stated that women felt more pain based on these feelings in their systematic review.³⁰

In this study, women who comment on mammography as "painful and uncomfortable" were found to have a higher frequency of mammography pain. Leong et al. (2007) stated that women thought that mammography was a painful procedure among the reasons for not taking mammography and that 23 out of 57 women did not mammography because they were afraid that they would feel pain.⁷ The result of our study were similar to a study conducted in Turkey.⁸ Women need to describe mammography as a positive procedure in terms of subsequent applications and transferring it to other women as a positive experience. Mammography pain frequency was found to be higher among women who reported sensitivity in breasts before mammography. It has also been reported in other studies that sensitivity in breasts affects pain severity; the result in our study is parallel with that.^{25,27}

In the present study, it was determined that women during mammography experienced mild anxiety. Additionally, there was no significant difference among the women with and without pain during mammography in terms of the State and Trait Anxiety levels. Similar results were reported in the study of Alimoglu et al. (2004) and Arslan et al. (2012).^{24,31} Hafslund (2000) reported an increase in the state anxiety level after mammography.¹⁰ Ozer et al. (2009) and Hafslund et al. (2012), in their studies examining women's anxiety levels who took

mammography, reported that anxiety levels were elevated in women due not to mammography, but to the thought of being diagnosed with cancer in association with mammography.^{15,32} The fact that mammography is accepted by many women as a painful procedure and the uncertainty about the possibility of cancer can cause women to live anxiety.^{15,31,33} Some emotional reactions accompany all the pain whether their source is physical or psychological. The most important of these is anxiety. It is known that there is a direct relationship between anxiety and pain and that they increase the severity of each other. While feeling pain increases the level of anxiety, anxiety can also increase the perception of pain.^{34,35} In this sense, both levels of pain and anxiety experienced by women in this study are mild, parallel to each other.

CONCLUSION

This cross-sectional research elucidated the extent that women were experienced mammography-related pain and anxiety. Women's reluctance to mammography may be due to their mammography-related pain experience. Mammography can be painful and increase anxiety. Health professionals should minimize mammography-related pain and anxiety. At the same time, health professionals should prevent mammography-related pain from becoming an obstacle to mammography. Mammography is an important and up-to-date diagnostic method for the diagnosis of breast cancer. We think that the health professionals who are in the risk group related to breast cancer and encounter with these groups will have an important role in decreasing the pain and anxiety experienced during mammography by providing the women with prior education and guidance about mammography.

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Conflict of interest

The authors declare no conflict of interest in this study.

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