

## Brief Communication

### Female patients' perception of pain caused by mammography in the Western Region of Saudi Arabia

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#### ABSTRACT

**Objectives:** To determine the association of different factors in the mammography related pain perception of women who attended their screening and diagnostic mammography appointments and whether the pain perceived was equal to the pain experienced.

**Methods:** This prospective study was conducted at the Breast Unit of King Abdulaziz University (KAU) Hospital, Jeddah, Kingdom of Saudi Arabia (KSA), in the period between April and May 2015. A structured questionnaire with close-ended questions was given to a sample of 100 women before and after their mammogram, asking about their pain perception and whether it had changed.

**Results:** The factors that affected anticipated mammography pain for the surveyed women were past mammography experiences, previous breast procedures, and the knowledge that was gathered beforehand about mammography. After the mammography, the women who thought the procedure was going to be painful experienced what they expected. The majority of the women who did not expect the mammography to be painful experienced pain during their mammogram. Most of the women who did not know whether it would be painful or not experienced the mammography as painful.

**Conclusion:** Pain expectation can be approached in various ways to make the mammography experience much more tolerable for women, encouraging them to attend and return for their scans.

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Globally, breast cancer is the most common cancer among women. Approximately one in 8 women will be diagnosed with breast cancer during their lifetime.<sup>1</sup> In the Middle East, a rise in morbidity and mortality due to breast cancer has been noted. It is the most common cancer among Arab women.<sup>2-4</sup> Women are being diagnosed at younger ages at advanced stages.<sup>5</sup> In Saudi Arabia, the incidence of breast cancer was

highest in 2010, with the mean age ranging from 43 to 52 years.<sup>6</sup> In the USA, more women are aware of early detection through screening, and breast cancer treatment has been improving, thus reducing breast cancer related mortality in women.<sup>1</sup> Women's breast cancer screening practices are influenced by certain factors that may act as barriers. In order to promote screening, these factors must be studied further.<sup>7</sup> Mammographic examination experiences greatly influence women's attitudes towards their future mammography appointments, and thus their attendance.<sup>8</sup> Numerous female patients complain of pain while going through their mammography examination. Several studies have been conducted to address the pain as a limiting factor for mammography appointment participation. Scaf-Klomp et al<sup>8</sup> reports that 55% of the women participating in mammography screening procedures complain about pain.

Painful mammography experiences stop women from attending their future mammography visits. The objective of this study is to focus on the factors that play a role in the mammography related pain perception of women who attended their screening and diagnostic mammography appointments, and whether the pain perceived was equal to the pain experienced.

**Methods.** A prospective study was conducted at the Breast Unit of King Abdulaziz University Hospital (KAU), Jeddah, Saudi Arabia between April 2015 and May 2015. Permission was obtained from the Committee of Bioethics at King Abdulaziz University to conduct this study. The target population was the female patients of different ethnicities (Arab, Asian, and African) and different ages who attended a screening or diagnostic mammography appointment at the Breast Unit at KAU hospital. Patients were selected by a simple sampling technique, excluding males and the female patients who had breast augmentation with breast implants or fillers. A structured questionnaire with closed-ended questions was designed after an extensive literature review on how women perceive breast pain while having a mammogram, and whether this pain perception prevented them from coming to their mammography appointment. A self-reporting questionnaire, with 4 sections was distributed to 100 female patients by random selection. They completed it before and after the exam, and the response rate was 100%. A brief explanation regarding the aim of the study was provided before distributing the questionnaires and verbal consent was obtained from all participants. They completed the questionnaire before and after the mammography. The first 3 sections were completed before the mammogram. The first section included personal and socio-demographic data, such

as age, marital status, educational level and occupation. The second part consisted of: 1) risk factors (history of breast disease/cancer, previous breast procedures, family history, use of oral contraceptive pills/hormone replacement therapy, lactation and menstrual status); 2) background information regarding mammography through previous mammography experiences, or information from awareness programmes, reading materials, family members or friends, or the explanation given before mammography by the physician/radiographer; and 3) reason for the mammography appointment: screening or follow-up. The third section focused on: 1) whether or not the patient has anticipated it being painful. To have a more accurate result, a (0-10) numeric pain rating scale<sup>9</sup> which was referenced from The National Initiative on Pain Control™ (NIPC™) was used, indicating that 0 meant 'no pain' and 10 meant 'worst possible pain' and 2) Whether the patient has received painkillers before the procedure or not. The fourth section of the questionnaire was completed after completing the mammogram. It focused on whether the level of pain expected was the same as the one experienced using the same pain assessment scale.

The analysis was performed using the Statistical Package for Social Sciences version 16 (SPSS Inc., Chicago, IL, USA).

**Results.** The socio-demographic data revealed that all patients were female; the total number was 100 with a response rate of 100%. There were 4 age groups, (<40 years), (40-50 years), (51-60 years), and (>60 years). The distribution of each group was as follows: 16%, 28%, 30% and 26% of the total number respectively. The second variable was between single, married and others (divorced/widowed). Eighty-four percent of the sample consisted of married women, 11% were single, and 5% were divorced or widowed. The third category involved the women's education, ranging from primary education and below (32%), secondary education and below (22%) to University and above, which made up the majority, 46%. The fourth variable was about occupation, with answers ranging from housewife (58%) to professional (37%), and non-professional jobs (5%).

Regarding the pre-mammography questions, they were separated into 3 components. The first and main section concerned women who expected the mammography to be painful, not painful, and those who did not know whether it was going to be painful or not (Table 1).

Concerning the mammography pain expectation in relation to relative risk factors and whether they

**Table 1** - Pre-mammography questions.

Question	Total (%)
<i>Are you expecting a painful mammography?</i>	
Yes	67
No	18
Don't know	15
<i>What is the pain scale out of 10 that you are expecting?</i>	
No pain (0)	33
Mild (1-4)	29
Moderate (5-7)	21
Severe (8-10)	17
<i>Reason for this mammography appointment</i>	
Screening	31
Follow up	69

were statistically significant in influencing pain perception, 8 factors were addressed: history of previous mammography, history of breast diseases/cancer, history of breast procedures, history of use of oral contraceptive pills/ hormone replacement therapy, background knowledge of mammography, family history of breast cancer, menstrual status, and lactation status. Out of the patients who were expecting a painful mammogram, 98.5% had a previous mammography experience, and this was a significant factor in the women's pain perception ( $p<0.001$ ). Approximately 55.2% of the women had previous breast procedures, and that was statistically significant in determining their pain expectation ( $p=0.001$ ). Approximately 74.6% of the women had background information about mammography, which meant reading about the procedure or gathering information from family/friends/physicians, and that had a statistical significance on their mammography pain perception ( $p<0.001$ ) (Table 2).

Out of the 67% of the women who expected the mammography to be painful, 47.8% experienced the same level of pain as expected, 29.9% experienced more pain than they had predicted, and 22.4% felt less pain. On the other hand, 18% of the surveyed women did not expect the mammography to be painful. After the mammogram, 44.4% of them did not experience any pain and 55.6% found the mammography to be painful. Finally, 15% of the surveyed women did not know whether the mammography was going to be painful or not. After the mammogram, 73.3% of them found the mammography to be painful. The pain scale pre-mammography and post-mammography showed a significant difference with a  $p<0.001$  (Table 3).

**Table 2** - The mammography pain expectation in relation to relative factors.

Questions	Yes n (%)	P-value
Do you think that the mammography will be painful this time?	67 (67.0)	
Have you had a mammography before?	66 (98.5)	<0.001
Do you have a history of breast disease?	48 (71.6)	0.064
Did you have any breast procedure?	37 (55.2)	0.001
Do you have family history of breast cancer?	17 (25.4)	0.706
Did you use OCP/HRT?	30 (44.8)	0.193
Do you have a background about mammography?	50 (74.6)	<0.001
<i>What is your menstrual status?</i>		0.542
On your period	3 (4.4)	
Not on your period	16 (23.9)	
Menopause or not applicable	48 (71.6)	
Are you lactating?	1 (1.0)	0.445

**Table 3** - Post mammography questions.

Questions	Yes	No	Don't know	P-value
Are you expecting a painful mammography?	67.0	18.0	15.0	
<i>Is the pain expected different from the pain experienced?</i>				<0.001
Same pain	47.8	44.4	N/A	
More pain	29.9	55.6	73.3	
Less pain	22.4	0	N/A	

Values are expressed as percentage. N/A - not applicable

**Discussion.** This study extends previous research on factors that may affect the pain perception related to mammography and whether they were significant, as well as comparing the pain experienced with the pain expected. The factors resulting in a painful experience during a mammography exam are of special importance, and should be further considered, as the mammogram is an essential element for the success of early breast cancer prevention campaigns.<sup>10</sup> In our study, 67% of our patients expected a painful mammography before going for the scan. Post-mammography, the total percentage of women who experienced pain was 88%. There was a significant difference in the mean scores of pain ( $p<0.001$ ). If women continue to face pain during their mammography scans, this might reduce their chances of attending their upcoming exams and consequently, indirectly raising morbidity and mortality rates due to breast cancer. Our results show that women who were expecting their mammogram to be painful had a history of previous mammograms. Women's perceptions and expectations of their mammography are fairly well determined by the pain experienced

during their scan. For better chances of returning for a future mammography examination and to optimize the procedure experience itself, it is of great benefit to minimise pain risks.<sup>10</sup> Previous breast procedures also had a significant impact on our patient's pain perception of mammography. To have adequate images of the breast tissue of women who have been diagnosed with breast cancer and who have had procedures, repeated increased compression studies are required. Ongoing breast pain in breast cancer survivors can influence more mammography related pain.<sup>11</sup> Our patients had also collected background information about mammography. These factors increased their pre-mammogram pain expectations. Studies showed that such factors may contribute to anticipatory anxiety and this may lead to pain emphasis.<sup>7</sup> Anticipatory anxiety may be associated with different aspects of mammography. It causes a tendency for women to have painful thoughts during the mammogram. This has an effect on their attendance for a mammography scan.<sup>7</sup>

Due to the time restrictions, a larger number of patients would have added more benefit to the study.

Pain expectation can be approached in various ways to make the mammography experience much tolerable for women, and encourage them to attend their scans. One way could be by psychological approach, and this could be carried out by the screening staff. Time can be taken to speak to the patient, informing them fully and correctly about the procedure while addressing any of their questions and concerns. Staff members can show more empathy towards the patients and communicate better with them.<sup>10</sup> Attempting to pre-medicate patients with analgesics prior to mammogram appointments can reduce the pain and encourage women to attend their future appointments. A study conducted by Lambertz et al<sup>12</sup> showed that applying 4% Lidocaine gel to the breast and chest wall around 30 to 60 minutes prior to the mammogram significantly reduced the discomfort experienced. Another way to reduce the pain experienced during a mammogram is patient-controlled compression. This is where patients can request to stop the compression at a lower force during the study. Studies have shown that patient-controlled compression may reduce pain and discomfort while causing minimal effects on the image quality.<sup>13</sup>

In conclusion, it is of great benefit for women and the society to improve breast cancer prevention, early detection and screening. Addressing women's pain perceptions and expectations can improve their thoughts and attitudes about attending their mammography appointments thus reducing morbidity and mortality due to breast cancer.

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