

Research Article

# Exploring Emotional and Psychological Impacts of Mammography in Women

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## Abstract

**Introduction:** Mammography is a diagnostic tool that is routinely used to test women for breast cancer. While it has been shown to be beneficial in detecting early-stage malignancies, it can also have emotional and psychological consequences for patients. The goal of this study is to dive into the emotional and psychological experiences of mammography patients. We hope to obtain a better understanding of the potential complications and problems faced by women during the screening process by investigating these elements.

**Materials and Methods:** The Psychological Consequences Questionnaire (PCQ) and a self-administered questionnaire were used to collect data. SPSS was used for statistical analysis. All participants were given information about mammography technology and safety, and their participation was based on informed consent.

**Results:** The study included 60 women ranging in age from 40 to 67 years old, with a mean age of 50.22. The PCQ results revealed a high prevalence of symptoms such as difficulty sleeping, changes in appetite, depression or unhappy feelings, fear and panic, nervousness or tension, feeling under pressure, withholding items, venting frustrations on others, withdrawal from relationships, difficulty with daily tasks, and difficulties fulfilling obligations. These findings shed light on the psychological repercussions that people face and point to the necessity for support networks or therapy to address these concerns.

**Conclusion:** This research focuses on the emotional and psychological effects of mammography on women. The data suggest that anxiety is a common feeling for women undergoing mammography, which could be exacerbated by previous negative experiences or fear of breast cancer. In order to provide holistic and comprehensive care, healthcare providers must recognize and meet patients' emotional and psychological needs.

**Keywords:** Mammography, Breast Cancer Screening, Emotional Impact, Psychological Impact, Women's Health.

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## Introduction

Breast cancer is the most common form of cancer in women worldwide, posing a considerable health concern. Every year, an alarming number of women are diagnosed with breast cancer, highlighting the critical need for effective screening and treatment. The incidence of Breast cancer in Pakistan has been steadily rising, with one out of every nine women at risk of having the disease. Tragically, Pakistan has one of the highest rates of breast cancer death in the world [1,2]. Breast cancer afflicted over 2.3 million persons worldwide in 2020, with 0.685 million deaths. [3] According to the WHO, the global prevalence of Breast cancer is growing by 1.8% to 2.0% every year. It is anticipated that more than 2.5 million new cases will be diagnosed each year by 2035. [4] Unfortunately, the death rate of breast cancer patients in the country is significant due to delayed referral to specialized facilities and late diagnosis. [5] Several studies have continuously stressed the need of early cancer diagnosis for successful cancer treatment. When cancer is identified early, the odds of healing and long-term survival improve dramatically. In contrast, late diagnosis diminishes the likelihood of successful treatment. As a result, it is critical to enhance broad public knowledge about the need of early detection and treatment for breast cancer. By raising awareness, we can encourage early discovery, increasing the chances of a happy outcome for those impacted by the condition. [6] Mammography screening is an excellent tool for detecting breast cancer in its early stages. The American College of Radiology and the American Cancer Society both suggested annual screenings for women aged 40 and over, with a specific emphasis on those aged 45-54. Biennial screenings are advised beginning at the age of 55. Over a 14-year period, studies demonstrate that screening mammography reduces breast cancer mortality by roughly 20-35% in women aged 50-69, and to a slightly lesser extent in women aged 40-49. Following these guidelines can help to improve early detection and survival rates. [7, 8] Mammography screening for breast cancer has recently become a source of debate and international concern as a result of negative pre- and post-screening effects observed in several trials [9]. However, the level of anxiety felt by women waiting for breast cancer screening visits has been shown to fluctuate, reflecting patients' different levels of concern about breast cancer screening [10]. The purpose of this study was to explore women's emotional and psychological experiences during the process of undergoing mammography.

## Materials And Methods

A cross-sectional study was carried out at the Aliya Begum Diagnostic and Cancer Care Center in Mirpur, AJK, which serves as the region's sole cancer care center. The research was conducted during August and October of 2023. Female patients referred for mammography screening by their primary care physicians were recruited directly from the Radiology Department. Participants were interviewed using a two-part self-administered questionnaire while waiting for their scheduled mammography appointments.

The first section of the questionnaire collected clinical and demographic information, such as age, marital status, educational level, work position, and personal or family history of breast cancer. The second component was the Psychological Consequences Questionnaire (PCQ), a trustworthy measure of the emotional, physical, and social impact of mammographic screening. The PCQ included 12 measures divided into three domains: emotional dysfunction, physical dysfunction, and social dysfunction. Ratings for symptoms within each domain were averaged to create a score indicating the level of dysfunction encountered. [11]

For categorical data, frequencies and percentages were given, while for continuous variables, descriptive statistics like means and standard deviations were computed. A significance criterion of  $P \leq 0.05$  with two tails was employed. Furthermore, the Statistical Package for the Social Sciences (SPSS) was utilized to compile the characteristics of the participating ladies through exploratory factor analysis (EFA) and descriptive statistics.

All participants were given information on the mammography technology and its safety, as X-rays were used throughout the screening process. The research protocol for this study was approved by the Hospital's Research Ethics Committee, and verbal consent was obtained from all participants following a detailed explanation of the study.

## Results

A total of 60 women aged 40 to 67 years (mean 50.22) participated in this study. A wide diversity of educational backgrounds is reported among women receiving mammography.

According to the data, 8.3% of these women are uneducated, while 3.3% have completed basic school and an equal amount have finished middle school. Furthermore, 6.6% have a secondary education, and a sizable proportion (26.6%) have an intermediate education. Notably, 30% of these women have a bachelor's degree, 18.3% have a master's degree, and 3.3% have a doctorate. Examining the employment status of women undergoing mammography, it is clear that 58.3% of them are working at the moment. Still, a sizable portion of women (41.6%) is unemployed. Married women make up a substantial majority of those having mammography procedures (93.3%). This result raises the possibility that a number of variables, including interpersonal connections and familial support networks, may have an impact on the decision to have a mammogram (TABLE 01).

**Table 01:** demographic characteristics of patients

Characteristics	Frequency	Percentage
<b>Age</b>		
40-49	34	56.6
50-59	17	28.3
60-69	9	0.15
<b>Education</b>		
Uneducated	5	8.3
Primary	2	3.3
Middle	2	3.3
Secondary	4	6.6
Intermediate	16	26.6
Bachelors	18	30
Masters	11	18.3
PHD	2	3.3
<b>Employment</b>		
Employed	35	58.3
Unemployed	25	41.6
<b>Marital Status</b>		
Married	56	93.3

Unmarried	4	6.6
<b>Residence</b>		
Mirpur AJK	60	100

To evaluate the individuals' various psychological symptoms, the Psychological Consequences Questionnaire (PCQ) (TABLE 02) was used. In this self-reported survey, participants rated their responses on the scale of 0-3. According to the findings, a sizable portion of people said they were having problems in several spheres of their lives. At a mean score of 1.37 ( $\pm 1.008$ ), 55% of participants reported having difficulty falling asleep. Additionally, with a mean score of 0.95 ( $\pm 0.982$ ), 38% of respondents stated that their hunger had changed. 48% of participants had an average score of 1.23 ( $\pm 0.871$ ), indicating a high prevalence of depression or unhappy sentiments. With an average score of 1.23 ( $\pm 1.11$ ), 42% of respondents said they felt afraid and panicked. An average of 1.48 ( $\pm 0.833$ ) was scored by 53% of individuals who reported feeling nervous or tense. 62% percent of respondents reported feeling under pressure, with an average score of 1.55 ( $\pm 0.852$ ). Furthermore, 21% of respondents acknowledged withholding items from others that mattered to them; they received an average score of 0.9 ( $\pm 0.817$ ). 30% of the individuals reported venting their frustrations on others, with a mean score of 0.92 ( $\pm 0.979$ ). An additional 30% of respondents noted a withdrawal from close relationships, with an average score of 0.9 ( $\pm 0.915$ ). A total of 43% of participants reported difficulty with daily tasks at home that were previously manageable, with an average score of 1.08 ( $\pm 0.889$ ). 35% of respondents found it difficult to fulfil their obligations, with a mean score of 0.98 ( $\pm 0.93$ ). Additionally, 65% of respondents scoring an average of 1.77 ( $\pm 1.577$ ) expressed concern about their future.

The psychological effects that the individuals went through are clarified by these PCQ results. The findings demonstrate the frequency of a number of symptoms, such as poor sleep, altered appetite, emotional distress, anxiety, strained relationships, social disengagement, and difficulties carrying out everyday tasks. These realizations help to improve our comprehension of the psychological effects on people and guide the development of possible support networks or therapies to deal with these issues.

**Table 02:** Items of psychological consequences

Item of PCQs	Percentage	Mean	Standard Deviation
Having trouble sleeping	55%	1.37	1.008
Experience changed appetite	38%	0.95	0.982
Been Unhappy or Depressed	48%	1.23	0.871
Been Scared and Panicky	42%	1.23	1.11
Felt Nervous or Strung Up	53%	1.48	0.833
Felt Under Strain	62%	1.55	0.852
Found You Have been Keeping things from those who are close to you	21%	0.9	0.817

Found yourself taking things out on other people	30%	0.92	0.979
Found yourself noticeably withdrawing yourself from those who are close to you	30%	0.9	0.915
Had difficulty doing things around the house which you normally do	43%	1.08	0.889
Had difficulty meeting work or other commitments	35%	0.98	0.93
Felt Worried about your future	65%	1.77	1.577

### Discussion

While screening for breast cancer is essential for early identification and prevention, it can also have negative psychological effects on women. Although the majority of women with a family history of breast cancer do not report significant levels of worry when it comes to mammography screening, those who have false-positive results may have more long-term distress and show lower rates of attendance for follow-up exams. Participants may experience severe anxiety during the interim between aberrant results and additional testing. An elevated level of awareness, worry, and emotional discomfort during mammography screening may be attributed to a positive family history of breast cancer. Healthcare providers must give these women with individualized assistance and information in order to empower them to make educated decisions and take proactive measures toward early identification and prevention of breast cancer. Early intervention, continuing support, and counseling are required to treat these psychological effects. Healthcare workers, particularly nurses, can be extremely helpful in determining anxiety levels, offering individualized assistance, and encouraging adherence to screening recommendations. More study is required to comprehend the psychological effects of mammography and create plans to lessen anxiety in women who have a family history of breast cancer. [10, 14, 15, 16, 17]

The purpose of this study was to investigate the consequences of screening mammography on a woman's emotional, social, and physical well-being. [11] The table displays the PCQ section that was examined in this investigation. This measure is reliable for assessing how mammography screening affects a person's physical, emotional, and social functioning. Five items assess emotional dysfunction (E), four assess physical dysfunction (P), and three assess social dysfunction (S). Overall, this is evident. A higher score indicates more dysfunction. The scores for symptoms within the emotional, bodily, and social dimensions are summed to yield a score that indicates the extent of dysfunction on each dimension. As a result of worries about breast cancer, the three survey has acquired measures of emotional, social, and physical dysfunction. [12] The questionnaire asks, "How often have you experienced the following over the past days due to thoughts and feelings regarding breast cancer?" then came the items. Response options are ranked from 0 to 3 and include "not at all," "rarely," "some of the time," and "quite a lot of the time." Each dimension's ratings are subtracted to yield the corresponding subscale scores. Higher scores correspond to higher dysfunction on that dimension. Field testing was done on a pilot version of the PCQ at screening and recall clinics. Items were evaluated for their floor effect, ability to measure variations between female groups, and perceptions of ease of completion by women. The judgments of a clinical interviewer, who was blinded to the PCQ score, were compared with the responses of women in initial screening and assessment clinics. Each subscale's high degree of agreement was regarded as a sign of concurrency validity. [13]

According to the study's wide educational background, women having mammography screening have varying levels of education, including higher levels such as bachelor's and master's degrees. This discovery may have consequences for their health-related habits and decision-making processes.

The majority of study participants were employed, implying possible access to healthcare resources for mammography screening. However, a significant number of women were unemployed, implying that there may be hurdles or inequities in healthcare access.

The fact that the majority of participants were married suggests that interpersonal relationships and familial support networks may play a role in the decision to undergo mammography. This demonstrates the importance of social variables in healthcare decision-making.

According to the findings of the PCQ Psychological repercussions Questionnaire, women who undergo mammography screening may face a number of psychological repercussions, including difficulty sleeping, changes in appetite, feelings of despair or dissatisfaction, dread, nervousness, and strained relationships. These findings emphasize the possibility of emotional distress and anxiety associated with the screening process, which can have an impact on overall well-being and future screening adherence.

The findings of the study are consistent with earlier research, underlining the significance of continued support and counseling for women undergoing mammography screening, particularly those who have false-positive results. Addressing psychological implications and providing appropriate support can enhance patient experiences, mental health outcomes, and future screening attendance rates.

Overall, the findings of this study shed light on the complex relationships between women's psychological outcomes following mammography, their job and marital status, and their educational backgrounds. The findings highlight the importance of holistic approaches to healthcare that take into account the psychological and social factors that may influence women's experiences. By addressing these factors through all-inclusive support systems, healthcare practitioners can endeavor to improve people's well-being and ensure a positive patient experience during the mammography treatment. Healthcare professionals should consider incorporating interventions such as pre-screening education, emotional support throughout the screening procedure, and post-screening counseling sessions to meet these emotional and psychological requirements. Positive screening experiences can also be facilitated by patient-centered care strategies that emphasize open communication and collaborative decision-making. Healthcare professionals can improve the general wellbeing of women undergoing mammography by recognizing these emotional issues and acting to offer support and counseling. It is important to keep in mind that this study has a number of limitations. The sample size was tiny, consisting just of sixty women from a specific age range and area and another significant limitation of the study is lack of control groups. These results might not apply to all populations of women undergoing mammography. Future study should aim to include larger and more diverse samples in order to better investigate the relationship between psychological effects, demographic variables, and the factors influencing women's experiences during mammography.

## Conclusion

In conclusion, this research illuminates the psychological and emotional effects that women who are having mammograms go through. The results underscore the possible discomfort, unease, and modifications in overall health that women might undergo throughout the screening procedure. These experiences may vary depending on variables like marital status, work position, and educational background. The psychological needs of women undergoing mammography, particularly those who receive false-positive results, must be acknowledged and attended to by healthcare personnel. Healthcare providers can enhance mental health outcomes, patient experiences, and screening attendance rates by offering customized interventions, counseling, and continuous support. In order to improve patient-centered care even more, future studies should keep delving into the intricate relationships that exist between demographic traits, psychological effects, and other variables that affect women's experiences during mammography.

## References

1. Menhas R, Umer S. Breast Cancer among Pakistani Women. *Iran J Public Health*. 2015 Apr;44(4):586-7. PMID: 26056679; PMCID: PMC4441973.

2. Ali A, Manzoor MF, Ahmad N, Aadil RM. The Burden of Cancer, Government Strategic Policies, and Challenges in Pakistan: A Comprehensive Review. *Front Nutr.* 2022 Jul 22;9:940514. doi: 10.3389/fnut.2022.940514. PMID: 35938114; PMCID: PMC9355152.
3. Lei S, Zheng R, Zhang S. Global patterns of breast cancer incidence and mortality: A population-based cancer registry data analysis from 2000 to 2020. *Cancer Commun (Lond).* 2021 Nov;41(11):1183-1194. doi: 10.1002/cac2.12207. Epub 2021 Aug 16. PMID: 34399040; PMCID: PMC8626596.
4. M Salama BM. Factors Affecting Mammography Screening Utilization among Educated Women in Al Beheira Governorate, Egypt. *Indian J Community Med.* 2020 Oct-Dec;45(4):522-525. doi: 10.4103/ijcm.IJCM\_41\_20. Epub 2020 Oct 28. PMID: 33623214; PMCID: PMC7877424.
5. Begum N. Breast Cancer in Pakistan: A Looming Epidemic. *J Coll Physicians Surg Pak.* 2018 Feb;28(2):87-88. doi: 10.29271/jcpsp.2018.02.87. PMID: 29394963.
6. Khan NH, Duan SF, Wu DD, Ji XY. Better Reporting and Awareness Campaigns Needed for Breast Cancer in Pakistani Women. *Cancer Manag Res.* 2021 Mar 2;13:2125-2129. doi: 10.2147/CMAR.S270671. PMID: 33688255; PMCID: PMC7936924.
7. Koc G, Gulen-Savas H, Ergol S, Yildirim-Cetinkaya M, Aydin N. Female university students' knowledge and practice of breast self-examination in Turkey. *Niger J Clin Pract.* 2019 Mar;22(3):410-415. doi: 10.4103/njcp.njcp\_341\_18. PMID: 30837432.
8. Oeffinger KC, Fontham ET, Etzioni R. American Cancer Society. Breast Cancer Screening for Women at Average Risk: 2015 Guideline Update From the American Cancer Society. *JAMA.* 2015 Oct 20;314(15):1599-614. doi: 10.1001/jama.2015.12783. Erratum in: *JAMA.* 2016 Apr 5;315(13):1406. PMID: 26501536; PMCID: PMC4831582.
9. Miller AB, Wall C, Baines CJ. Twenty five year follow-up for breast cancer incidence and mortality of the Canadian National Breast Screening Study: randomised screening trial. *BMJ.* 2014 Feb 11;348:g366. doi: 10.1136/bmj.g366. PMID: 24519768; PMCID: PMC3921437.
10. Al-Alawi NM, Al-Balushi N, Al Salmani AA. The Psychological Impact of Referral for Mammography Screening for Breast Cancer Among Women in Muscat Governorate: A cross-sectional study. *Sultan Qaboos Univ Med J.* 2019 Aug;19(3):e225-e229. doi: 10.18295/squmj.2019.19.03.008. Epub 2019 Nov 5. PMID: 31728220; PMCID: PMC6839681.
11. Cockburn J, Staples M, Hurley SF, De Luise T. Psychological Consequences of Screening Mammography. *Journal of Medical Screening.* 1994;1(1):7-12. doi:10.1177/096914139400100104.
12. Cockburn J, De Luise T, Hurley S, Clover K. Development and validation of the PCQ: a questionnaire to measure the psychological consequences of screening mammography. *Soc Sci Med.* 1992 May;34(10):1129-34. doi: 10.1016/0277-9536(92)90286-y. PMID: 1641674.
13. Brodersen J, Thorsen H, Cockburn J. The adequacy of measurement of short and long-term consequences of false-positive screening mammography. *J Med Screen.* 2004;11(1):39-44. doi: 10.1177/096914130301100109. PMID: 15006113.
14. Brett J, Austoker J. Women who are recalled for further investigation for breast screening: psychological consequences 3 years after recall and factors affecting re-attendance. *J Public Health Med.* 2001 Dec;23(4):292-300. doi: 10.1093/pubmed/23.4.292. PMID: 11873891.
15. Meystre-Agustoni G, Paccaud F, Jeannin A, Dubois-Arber F. Anxiety in a cohort of Swiss women participating in a mammographic screening programme. *J Med Screen.* 2001;8(4):213-9. doi: 10.1136/jms.8.4.213. PMID: 11743038.
16. Pineault P. Breast Cancer Screening: Women's Experiences of Waiting for Further Testing. *Oncol Nurs Forum.* 2007 Jul;34(4):847-53. doi: 10.1188/07.ONF.847-853. PMID: 17723985.
17. Sarah J. Miller, Erin L. O'Hea, Jennifer Block Lerner. (2011) The Relationship between Breast Cancer Anxiety and Mammography: Experiential Avoidance as a Moderator, *Behavioral Medicine*, 37:4, 113-118, DOI: 10.1080/08964289.2011.614291.