Knowledge, perception and utilization of breast cancer screening among women visiting primary care clinics

Rabeeya Saeed[1], Maaha Usmani[1], Noureen Durrani[2], Hamna Javaid[1], Haya Tahir[1]

[1]Family Medicine Department, Liaquat National Hospital, Karachi, Pakistan, [2]Department of Publication, Liaquat National Hospital, Karachi, Pakistan

Abstract

Context: Of all the cancers in the world, breast carcinoma claims to be the deadliest for women in the world. It is of key importance that early detection of breast cancer is made possible through awareness programs targeting the general population. However, this solution is fraught with obstacles. Noteworthy of these obstacles are lack of education. **Aims:** To determine knowledge, perception, and utilization of breast cancer screening among women visiting primary care centers in Karachi, Pakistan. **Settings and Design:** This cross-sectional study was conducted in community-based primary care centers at Liaquat National Hospital Karachi from September 2021 to February 2022. **Material and Methods:** The data was collected by using a semi-structured questionnaire. The questions were derived from the Cancer Awareness Measure (CAM) scale, the most frequently used and validated tool to assess awareness of cancer risk factors and screening. **Statistical Analysis:** Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 21. **Results:** A total of 386 participants were enrolled in the study. The median age of study participants was 32 (IQR=) years. Only a few had correct knowledge regarding the breast cancer screening method (n = 118, 30.6%). However, 114 (29.5%) correctly responded that after 40 years, yearly mammography screening should be conducted (n = 114, 29.5%). The majority considered performing breast self-examination important for health (n = 273, 70.7%). 187 (48.4%) women responded that they once performed a self-examination of their breasts. **Conclusion:** The study highlighted a significant gap in knowledge regarding breast cancer screening among women. There is a need to emphasize the integration of health education interventions at the primary care level keeping in mind the health literacy level of our population.

Keywords: Breast cancer, carcinoma, health screening, mammography, primary care

Introduction

Of all the cancers in the world, breast carcinoma claims to be the deadliest for women in the world. The mortality and morbidity due to breast carcinoma all over the world have exponentially grown over the last 25 years, and now breast carcinoma claims the highest mortality rate among women in many countries. A study conducted in 2012 depicted that 1 million new cases of cancer were reported annually, followed by about 700,000 cancer deaths in India.[1] In Pakistan, breast cancer was responsible for 11.7% (13,725) of all cancer fatalities and 28.7% (25,928) of all new cases.[2] The incidence of breast cancer in Pakistan is reported to be the highest in Asia, with an age-standardized incidence rate (ASR) of 51.7%. The statistics OF 2018 revealed almost 2.1 million new cases with 627,000 deaths.[3] It is reported that 1 in 9 women in Pakistan will develop breast cancer at some stage of her life.[4,5] This trend of increase in morbidity is alarming for health policymakers worldwide; in particular, even greater constraints on low-income countries such as Pakistan. This high burden of disease is made even more worrisome by

Address for correspondence: Dr. Rabeeya Saeed, Family Medicine, Liaquat National Hospital, Karachi, Pakistan.
E-mail: Rabeeya.saeed@lnh.edu.pk

How to cite this article: Saeed R, Usmani M, Durrani N, Javaid H, Tahir H. Knowledge, perception and utilization of breast cancer screening among women visiting primary care clinics. J Family Med Prim Care 2025;14:637-42.

the financial burden of costly surgeries, chemotherapy, and other procedures imposed upon the people presenting in the later stages of the disease.

Therefore, it is of key importance that early detection of breast cancer is made possible through awareness programs targeting the general population. However, this solution is fraught with obstacles. Noteworthy of these obstacles are lack of education,[6] cultural inhibition in discussing breast health (the example of which we get from a WHO representative in Pakistan that it is not easy to use the term 'breast' in public sometimes and the term 'cancer of women' usually yields more positive results[7]), acceptance of screening methods; that result in usually delayed presentation of breast cancer, and culminate in higher rates of morbidity and mortality. Other factors that have been identified in decreasing the general acceptability are the provision of quality care by local health centers, inadequate clinic personnel, availability of appropriate equipment, and reasonable waiting time to obtain the results of screening.[8]

However limited data is available from developing countries such as Pakistan at the primary care level, where understanding the perception of women toward breast cancer screening is of utmost importance considering the alarming rise in the burden of breast cancer.[9] Hence, we planned the current study to determine knowledge, perception, and utilization of breast cancer screening among women visiting primary care centers in Karachi, Pakistan. The result of this study will help policy-makers and other stakeholders to design strategies for overcoming barriers which may ultimately lead to acceptance of a more vigilant approach towards early screening and diagnosis.

Material and Methods

Study design, setting and duration

This cross-sectional was conducted in community-based Primary care centers of Liaquat National Hospital Karachi, Pakistan from September 2021 to February 2022.

Inclusion and exclusion criteria

All women (patient/attendant) visiting outpatient clinics were included. Women who were unable to understand English or Urdu and those diagnosed with breast cancer, mentally incapacitated, severely ill, or who are in acute pain or any emergency condition were excluded.

Ethical consideration

The study was commenced after acquiring approval from the hospital ethics committee (IRB#: APP#0657-2021-LNH-ERC). Written informed consent was obtained from patients before their study enrolment.

Sample size calculation and sampling technique

A previously conducted study in Pakistan reported that 37% knew the risk factors of breast cancer and 55.2% of women knew about breast cancer screening.[6] Therefore, at 95% confidence interval and 5% precision, a sample of 359 and 380 estimates for knowledge of breast cancer risk factors and breast screening. Sample size calculation was performed on the online available software Open-Epi. Patients were enlisted into the study using a non-probability consecutive sampling technique.

Study instrument

The data was collected by using a semi-structured questionnaire. The questions were derived from the Cancer Awareness Measure (CAM) scale, the most frequently used and validated tool to assess awareness of cancer risk factors and screening.[10] The questionnaire was translated into Urdu language and pilot-tested among women above 18 years of age. The questionnaire was divided into three sections; the first covered the socio-demographic characteristics (age, nationality, education level, language, marital status, and employment status). The second section included questions relating to breast cancer symptoms and screening. The third section addressed perceptions and practices regarding the utilization of various breast cancer screening modalities including breast self-examination, ultrasound, and mammography.

Data analysis

SPSS version 21 was used for data analysis. Descriptive statistics frequencies with percentages and median with interquartile range were computed for categorical and numerical variables respectively.

Results

### Socio-economic characteristics of study participants

A total of 386 participants were enrolled in the study. The median age of study participants was 32 (IQR =) years with an age range of 18 to 82 years. Table 1 displays the socio-demographic features of study participants.

History of breast cancer

None of the respondents was diagnosed with breast cancer. 5 (1.3%) women were diagnosed with other cancers including rectal cancer (n = 1, 0.3%) and uterine cancer (n = 1, 0.3%). Approximately, a quarter of women reported that their immediate family members suffered from breast cancer (n = 101, 26.2%).

Knowledge of breast cancer screening and its risk factors

In total, 143 (37%) women did not know what is meant by breast cancer screening. 132 (34.2%) said it means that screening before symptoms onset whereas 77 (19.9%) and 34 (8.8%) responded that it means check-up after symptoms onset and test on a computer screen respectively. Only a few had correct knowledge regarding the breast cancer screening method (n = 118, 30.6%). Figure 1 shows the response distribution of participants regarding available methods for breast cancer screening.
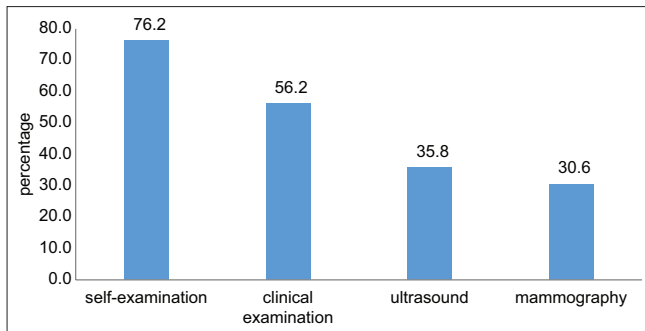
Figure 1: Responses regarding available methods for breast cancer screening

More than one-third of females had correct knowledge that unexplained lumps or swelling could be a sign of breast cancer (n = 263, 68.1%). More than half of the participants knew that being over 40 years old is a risk factor for breast cancer (n = 234, 60.6%). Approximately, half of the participants responded that persistent unexplained pain (n = 175, 45.3%), bleeding from nipples (n = 191, 49.5%), weight loss (n = 188, 48.7%), and having a positive history of BC in a close family member (n = 198, 51.3%) may be breast cancer sign.

Perception regarding mammography, ultrasound, and self-examination

In total, 114 (29.5%) correctly responded that after 40 years, yearly mammography screening should be conducted (n = 114, 29.5%). 162 (42%) did not know about the schedule and recommended age for performing routine mammography screening whereas 73 (18.9%), 26 (6.7%), and 11 (2.8%) females said that the recommended age for yearly screening is 30, 50 and 60 years respectively. 194 (50.3%) women said regular mammography screening is important for health. 63 (16.3%) said that is not important and 129 (33.4%) did not know about this. Table 2 displays reasons for not undergoing mammography screening.

The majority of women did not know about the recommended age and schedule for routine breast ultrasound screening (n = 162, 42%). 103 (26.7%), 88 (22.8%), 26 (6.7%), and 7 (1.8%) said that breast ultrasounds should be yearly performed after the age of 30, 40, 50, and 60 years, respectively. Most participants responded that it is important for health to undergo breast ultrasound (n = 178, 46.1%). 100 (26%) women said it is not important while 108 (28%) did not about the importance of this evaluation. Table 3 shows the reasons for not undergoing breast ultrasound.

The majority considered performing breast self-examination important for health (n = 273, 70.7%). However, 29 (7.3%) said it is not important for health. 83 (21.5%) said they did not know that breast self-examination is important for health. Moreover, 92 (23.8%) women said that breast examinations should be daily performed. When asked for recommended advice for breast self-examination, 196 (50.8%) females said women should know about their breasts and changes should be informed to the physician. 17 (4.4%) women said only women of age >40 years should do self-examination. 81 (21%) women did not about it. When asking the time interval of self-examination, the majority of women said never (n = 185, 47.9%). 106 (27.5%), 50 (13.6%), and 44 (11.4%) females said monthly, yearly, and weekly respectively. Table 4 shows reasons for not performing breast self-examination.

Table 1: Descriptive statistics for socio-demographic features of study participants

Socio-demographic features	Groups	Frequency	Percentage
Language	Urdu	220	57.0
	Sindhi	50	13.0
	Punjabi	32	8.3
	Pashto	33	8.5
	Balochi	19	4.9
	Kashmiri	6	1.6
	Persian	1	0.3
	Others	25	6.5
Education	Religious	8	2.1
	Primary	11	2.8
	Secondary	11	2.8
	Matric	59	15.3
	Intermediate	115	29.8
	Graduate	127	32.9
	Masters	55	14.2
Occupation	Permanent job	59	15.3
	Part timer	34	8.8
	Business	17	4.4
	House wife	213	55.2
	Others	63	16.3
Marital status	Unmarried	126	32.7
	Married	242	62.9
	Separation	4	1.0
	Divorced	5	1.3
	Did not respond	8	2.1

Table 2: Reasons of not undergoing mammography screening

Reasons	Strongly disagree n (%)	Disagree n (%)	Agree n (%)	Strongly agree n (%)
I feel afraid	70 (18.1)	160 (41.5)	114 (29.5)	42 (10.9)
I feel ashamed	67 (17.4)	178 (46.1)	99 (25.6)	42 (10.9)
I cannot afford	61 (15.8)	192 (49.7)	91 (23.6)	42 (10.9)
I do not fall in the recommended age group	82 (21.2)	153 (39.6)	126 (32.6)	25 (6.5)

Table 3: Reasons of not undergoing breast ultrasound

Reasons	Strongly disagree n (%)	Disagree n (%)	Agree n (%)	Strongly agree n (%)
I feel afraid	60 (15.5)	188 (48.7)	99 (25.6)	39 (10.1)
I feel ashamed	69 (17.9)	191 (49.5)	90 (23.3)	36 (9.3)
I cannot afford	56 (14.5)	206 (53.4)	85 (22)	39 (10.1)
I do not fall in the recommended age group	61 (15.8)	202 (52.3)	91 (23.6)	32 (8.3)

Utilization of breast cancer screening

Only 20 (5.2%) females underwent mammography screening. 174 (45.1%) women underwent breast ultrasound. 187 (48.4%) women responded that they once performed a self-examination of their breasts. Table 5 displays the perceptions of women regarding consulting to doctor if symptoms of BC appear.

Discussion

The present study focused on three components of breast cancer screening. Exploring the knowledge of early symptoms of breast cancer and the correct methods of breast cancer screening; perceptions regarding various modalities of screening, and utilization thereof, taking in view the different barriers that may exist at the personal, financial, and medical levels.

In our study, 37% of the participants were unaware of the meaning of breast cancer screening; 34.2% had the correct information that screening implies testing before the symptoms appear. Only 30.6% were aware of the methods of breast cancer screening. These findings concur with another recent study conducted in Pakistan which also reported suboptimal knowledge regarding breast cancer screening modalities.[10] However, considering that the majority of our participants were literate, these statistics are alarming since some of our studies conducted in the last decade showed a positive impact on awareness regarding breast cancer screening that could be attributable to widespread media campaigns nationwide in Pakistan during October every year.[11,12] The lower frequency of knowledge in our study as compared to the previous studies highlights the need to explore other channels of health education that should be tailored according to the health literacy of the target population.

Nearly half of the participants knew the symptoms of breast cancer such as swelling, nipple discharge, etc. This is reassuring yet there is a need to probe into its actual application because of contrasting evidence received from prior studies in which most women tend to present late with symptoms,[13] perceive the breast as a purely sexual organ,[14] and a general social unacceptance of discussion regarding breast health.[13,15]

The perception regarding the need for screening mammography was found to be quite low in our study which again contradicts with other local studies conducted in Pakistan. This is in contrast to an International study conducted in Nigeria where favorable knowledge and a positive attitude toward screening mammography were reported by a majority of the participants.[8] This contrast can be because of cultural and social stigma associated with breast cancer awareness campaigns which hinders health education for women at the community level.[12,13]

Although not recommended by WHO, in developing countries, where the availability and accessibility of mammography is low, self-breast examination (SBE) plays a role in early cancer detection.[16-18] In our study, more than half (70.7%) considered SBE important for health and demonstrated a positive attitude towards breast self-examination and timely addressing any identified changes with their primary physicians. This finding is in concordance with other studies conducted in Pakistan where females developed a better understanding of breast self-examination as a screening modality.[13] However, the actual practice of breast self-examination was observed in less than 50% of the participants highlighting a significant knowledge practice gap. This could be attributable to a lack of regular reinforcement and awareness campaigns at the household or community level.

The actual utilization of mammography was also found to be quite low in our study. While inquiring about the barriers to optimal screening utilization, no major factors were identified, however, it was found that most of the participants felt comfortable discussing with their healthcare providers, and did not find time constraints or transport to be a hurdle during the utilization of screening methods. This is in contrast to the findings of a systemic review which delineated the provision of low-quality healthcare as the most common barrier to utilization

Table 4: Reasons of not performing self-examination

Reasons	Strongly disagree *n* (%)	Disagree *n* (%)	Agree *n* (%)	Strongly agree *n* (%)
I feel afraid	77 (19.9)	165 (42.7)	106 (27.5)	38 (9.8)
I feel ashamed	75 (19.4)	167 (43.3)	106 (27.5)	38 (9.8)
I am not aware of performing self-examination	70 (18.1)	152 (39.4)	118 (30.6)	46 (11.9)

Table 5: Response distribution of reasons for not visiting doctors if symptoms appears

Could you say if any of these might put you off going to the doctor?	Strongly disagree *n* (%)	Disagree *n* (%)	Agree *n* (%)	Strongly agree *n* (%)
I would be too embarrassed	70 (18.1)	158 (40.9)	98 (25.4)	60 (15.5)
I would be too scared	64 (16.6)	139 (36)	132 (34.2)	51 (13.2)
I would be worried about wasting the doctor's time	81 (21)	182 (47.2)	66 (17.1)	57 (14.8)
it will be difficult to talk to doctor	64 (16.6)	192 (49.7)	89 (23.1)	41 (10.6)
I would be too busy to make time to go to the doctor	64 (16.6)	157 (40.7)	120 (31.1)	45 (11.7)
I have too many other things to worry about	56 (14.5)	180 (46.6)	110 (28.5)	40 (10.4)
It would be difficult for me to arrange transport to the doctor's clinic	65 (16.8)	183 (47.4)	94 (24.4)	44 (11.4)
I would be worried about what the doctor might diagnose	60 (15.5)	164 (42.5)	111 (28.8)	51 (13.2)

of screening methods among LMIC Asian countries; secondly, a dearth of physicians was identified as a barrier followed by health information systems.[19]

With the low uptake of breast cancer screening in the absence of any significant reported barriers at the personal level; it is worthwhile to explore and address factors at the healthcare system and policy level which may contribute as a significant barrier to the utilization of breast cancer screening.

Strengths and limitations

This study is unique as it explored the perception and knowledge of women attending a primary care community-based health-care set-up, hence, to some extent, the results can be generalizable to the community. The data collection tool was structured, derived from the validated questionnaire, pilot-tested, and extensively inquired about all the modalities of breast cancer screening. However, it is imperative to note that the health-seeking behavior of women who participated in the study may be different as compared to those who do not have access to health care which may have led to overestimation of our results.

Conclusion

The study highlighted a significant gap in knowledge regarding breast cancer screening among women. There is a need to emphasize the integration of health education interventions at the primary care level keeping in mind the health literacy level of our population. Further studies are warranted to assess the effectiveness of various educational interventions at the community level which may positively impact the knowledge and perception of women regarding utilization of breast cancer screening.

Key message and recommendations

- There is a significant dearth of knowledge regarding breast cancer screening among women visiting community clinics in a developing country.
- It is worthwhile to explore the barriers related to the perception and utilization of breast cancer screening methods and address them effectively at the primary care level.
- Breast cancer screening services should be available to women at the level of community-based primary care.

Declaration of patient consent

The authors attest that they have all necessary patient permission paperwork on file. The patient(s) has/have granted permission in the form for his/her/its photographs and other clinical data to be published in the journal. The patients are aware that while every attempt will be made to keep their identities hidden and their names and initials kept confidential, anonymity cannot be guaranteed.

Financial support and sponsorship

Conflicts of interest

There are no conflicts of interest.

References

1. Xu Y, Gong M, Wang Y, Yang Y, Liu S, Zeng Q. Global trends and forecasts of breast cancer incidence and deaths. Sci Data 2023;10:334.
2. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, *et al.* Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin 2021;71:209-49.
3. Khan NH, Duan SF, Wu DD, Ji XY. Better reporting and awareness campaigns needed for breast cancer in Pakistani women. Cancer Manag Res 2021;13:2125-9.
4. Ali A, Manzoor MF, Ahmad N, Aadil RM, Qin H, Siddique R, *et al.* The burden of cancer, government strategic policies, and challenges in Pakistan: A comprehensive review. Front Nutr 2022;9:940514.
5. Begum S, Khan MR. Need for a national cancer registry in Pakistan: Challenges and way forward. J Pak Med Assoc 2023;73:1475-9.
6. Naqvi AA, Zehra F, Ahmad R, Ahmad R, Ahmad N, Yazdani N, *et al.* Awareness, knowledge and attitude towards breast cancer, breast screening and early detection techniques among women in Pakistan. J Pak Med Assoc 2018;68:576-86.
7. World Health Organization. Breast Cancer. Available from: https://www.who.int/news-room/fact-sheets/detail/breast-cancer [Last accessed on 2022 Jun 11].
8. George TO, Allo TA, Amoo EO, Olonade O. Knowledge and attitudes about breast cancer among women: A wake-up call in Nigeria. Open Access Maced J Med Sci 2019;7:1700-5.
9. Arif M, Javed M, Raza H. Breast cancer in Pakistan: Alarming situation of breast cancer in near future. Iran J Public Health 2020;49:812-3.
10. Shoukat Z, Shah AJ. Breast cancer awareness and associated factors among women in Pakistan: A cross-sectional descriptive study. Asian Pac J Cancer Prev 2023;24:1561-70.
11. Linsell L, Forbes LJ, Burgess C, Kapari M, Thurnham A, Ramirez AJ. Validation of a measurement tool to assess awareness of breast cancer. Eur J Cancer 2010;46:1374-81.
12. Ali A, Jameel N, Baig NN, Zulfiqar Hyder Naqvi SM, Ahmed Jafry SI, Younus M. Assessment of knowledge, attitude and practice regarding breast self examination among females in Karachi. J Pak Med Assoc 2020;70:1985-9.
13. Baig M, Sohail I, Altaf HN, Altaf OS. Factors influencing delayed presentation of breast cancer at a tertiary care hospital in Pakistan. Cancer Rep (Hoboken) 2019;2:e1141.
14. Khazaee-pool M, Majlessi F, Foroushani AR, Montazeri A, Nedjat S, Shojaeizadeh D, Tol A, Salimzadeh H. Perception of breast cancer screening among Iranian women without experience of mammography: a qualitative study. Asian Pac J Cancer Prev 2014;15:3965-71.
15. Gupta R, Gupta S, Mehrotra R, Sodhani P. Risk factors of breast cancer and breast self-examination in early detection: Systematic review of awareness among Indian women in community and health care professionals. J Public Health (Oxf) 2020;42:118-31.
16. Albeshan SM, Hossain SZ, Mackey MG, Brennan PC. Can

breast self-examination and clinical breast examination along with increasing breast awareness facilitate earlier detection of breast cancer in populations with advanced stages at diagnosis? Clin Breast Cancer 2020;20:194-200.

17. Bingöl D, Kılıcıkesen E, Aydemir C, Duman NB. Current approaches in breast cancer screening for elderly women. Turk Clin Obstet Womens Health Dis Nurs Spec Top 2019;5:15-8.

18. World Health Oragnization. Guidelines for the early detection and screening of breast cancer. Available from: https://applications.emro.who.int/dsaf/dsa696.pdf. [Last accessed on 2022 Jun 11].

19. Afaya A, Ramazanu S, Bolarinwa OA, Yakong VN, Afaya RA, Aboagye RG, *et al.* Health system barriers influencing timely breast cancer diagnosis and treatment among women in low and middle-income Asian countries: Evidence from a mixed-methods systematic review. BMC Health Serv Res 2022;22:1601.