

Original Research Article

Outcomes of community based mammography camps in urban and rural Maharashtra

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ABSTRACT

Background: Breast cancer ranks at number one, amongst all cancer cases in India. Biennial mammography screening is recommended to enhance early detection of breast cancer. Lack of awareness, cost and availability of services is a hindering factor to undergo screening. Free screening mammography camps as means to motivate women to seek the facility at her doorstep was the strategy adopted under the breast cancer awareness and screening programme. The outcome of the mammography camps is reported here.

Methods: Mammography camps were conducted in urban and rural areas of Maharashtra over a period of three years. The process involved identification of eligible beneficiaries, health education, clinical breast examination followed by mammography in the mobile unit. Each camp had 25 to 40 women as this was the maximum limit that could be done per day by the mobile unit.

Results: Total 358 women underwent mammography screening in 10 community based screening camps, of which 2 camps were conducted in rural areas. Women were mostly between 50 to 70 years. Of the 40.8% women with some abnormalities in the mammogram, one was diagnosed with breast cancer and eight had benign breast lesions.

Conclusions: Though only a single case was detected, the camp approach was successful in sensitising the women on the need for preventive health checkup and motivated women to undergo mammography. Organising camps is by no means an easy task, however the camp approach may be the only way to provide access to mammography facilities in most parts of the country.

Keywords: Clinical breast examination, Mammography, Screening

INTRODUCTION

Among all cancers in India, breast cancer is ranked number one cancer for its incidence and number of deaths. Age standardized incidence rate of breast cancer is 24.7/lakh and a mortality rate of 13.4/lakh population.¹ Among all cancers, 27.7% of all the new cancer cases in females (5,87,249) in India are breast cancer cases.¹

India being a conservative society, women hesitate to seek medical attention. There is a lack of awareness of breast cancer and the importance of undergoing preventive health checkup for breast cancer. In a study

conducted in Delhi, knowledge and utilisation of mammography was found to be low amongst working women.² A study in Udupi district of Karnataka found that none of the women in the study had undergone mammography.³ Tripathi et al found that awareness about breast cancer was low in rural India, Singh et al in their article state that awareness about the need to have breast cancer screening checkup is poor.^{4,5}

Breast cancer is known to occur at a younger age in Asian women, a decade earlier than the developed countries.^{6,7} Guidelines recommend biennial screening with mammography between 50-70 years of age.⁸ In India,

even though there exists a national health programme for prevention and control of cardiovascular disease, stroke, diabetes and cancer, the programme is yet to achieve a good coverage.⁹ The facilities for mammogram are available in some private hospitals but cost is an hindering factor.⁵ Most of the patients seek medical advice when the disease is fairly advanced.^{10,11} In most of the developing countries, high-quality, population-based mammographic screening is currently too costly to implement and sustain.¹²

Mammography, however, is the need of the hour in India, despite its financial implications. Mammography screening camps help reach out to the public, increase awareness, help mobilize women to seek medical care and also identify malignancy at an earlier stage.¹³ The community-based cancer control programmes provide an early breast cancer detection benefit to enrollees regardless of whether programme services (mammography) were conducted for only one cycle or were continued at regular intervals.¹⁴

The increasing trend of breast cancer, poor access to mammography and financial constraints to avail the mammography services, prompted us to provide mammography services through a mobile unit in the adopted field practice area of the institute. In this research article we have described the utilisation and outcome of mammography services amongst the urban and rural women following the health education programme in urban and rural Maharashtra.

METHODS

The study design was descriptive cross-sectional study design conducted at Pratikshnagar in Mumbai and Lodhivali in Panvel between 2014 and 2016. The mammography camps were conducted in the adopted field practice area of urban and rural health training centre of the institute. The population in both the areas was predominantly Hindu.

There are three distinct stages in conducting the camp. In the first stage, identification of eligible beneficiaries, and health education was done to motivate the women to undergo screening. This was followed by clinical breast examination either at the clinic (urban) or camp (rural). In the second stage, they underwent mammography in the mobile unit and in the third stage the reports were handed over to the women and referral was advised if needed.

In the urban area, the trained health care workers (HCW) listed the eligible beneficiaries and conducted one to one health education during the home visit. In the health education, the women were informed of breast cancer and motivated to undergo clinical breast examination and mammography. The women were referred to the urban health training centre (UHTC), located in the project area, where a free weekly clinic for clinical breast examination (CBE) was conducted every Tuesday. A written informed

consent was obtained for participation in the breast cancer awareness and screening programme. At the clinic, the women underwent CBE and screening for other non-communicable diseases before undergoing mammography.

In the rural area, eligible women were identified by accredited social health activist (ASHA) and auxiliary nurse midwife (ANM), and invited for the camp. The trained medical officers (MO) and ANM conducted group health education sessions on breast cancer using flip charts and emphasized on the need to undergo screening.

The camps in rural area included clinical breast examination and mammography examination on the same day unlike the urban area. Additional health services, like non communicable disease screening (hypertension, obesity, anemia and cervical cancer) were provided during the camp to increase participation especially in rural area. Since the camp site was near hilly terrain in one of the rural camps a transport facility was provided for participants arriving from distant hamlets.

Mammography camps were arranged in the community thrice a year with the help of a mobile unit. The camps were organized at outdoor locations, between the period of January and March or November and December to avoid summer heat, thereby maximizing participation. The maximum number of mammograms that could be done in a day in the mobile unit was initially 25 and subsequently increased to 40.

Beneficiaries who met inclusion criteria of age (50 years and above), had undergone clinical breast examination and consenting to mammography were eligible to avail the mammography services in the mobile unit. Additionally women between 40-50 years of age with family history of breast cancer, past history of breast lesions or clinical suspicion of breast cancer were also referred for mammography. Those who had known cardiac disease were ineligible for undergoing mammography. The beneficiaries were explained about the mammography procedure and a written consent was obtained for mammography.

The reports of mammography were handed over to the women about two weeks later. Women were counselled and referred appropriately for further management based on their findings. Those with normal reports were encouraged to undergo screening after two years.

The institutional ethics committee approval for the breast cancer awareness and screening programme was taken.

Microsoft excel version 2017 is used for data entry and analysis. Descriptive analysis of biological variables, CBE and Mammography findings is done. Simple frequency and percentage tables are used to summarize and present data.

RESULTS

A total of ten camps were conducted in the three years period from January 2014 to December 2016, of which eight were in urban area and two in rural area. The total number of women attending the camp was 358. Table 1 shows the number of women attending in each camps. Maximum participants were from the age group of 50 to 70 years (Table 2). The mean age of the participants was 57.68 years with a standard deviation of 7.91 (range 40 to 90 years).

Table 1: Number of women attending the camps in urban and rural area.

Camp no.	Year	Urban/rural area	No. of women
1	2014	Urban	28
2	2014	Urban	41
3	2014	Urban	41
4	2015	Urban	38
5	2015	Urban	40
6	2015	Urban	25
7	2016	Urban	38
8	2016	Urban	40
9	2016	Rural	34
10	2016	Rural	33

The density of breast parenchyma as reported in the mammogram was fatty (4.5%); scattered fibroglandular

(58.1%); heterogeneous dense (32.9%) and dense (4.5%). As seen in Table 3, breast parenchyma was reported to be dense/heterogeneous dense in 66.6% of the women in the age group of 40-49 years. Of the 358 women, 40.8% (146) had some abnormalities detected in the mammogram. One woman aged 40 years, was diagnosed with malignancy. Two women had fibroadenoma with calcification, two had typical fibroadenoma and four had a lesion which was reported as cyst/fibroadenoma. All these eight cases were in the age group of 50-70 years. Intramammary node was detected in 15 women; vascular calcification in 137 women; coarse calcification in nine women; popcorn calcification in one woman; four had punctate calcification and six had central lucent calcification (Table 4).

Table 2: Age and geographic distribution of participants.

Age category	Urban n=291	Rural n=67	Total n=358
40 to 49 years	26 (08.9%)	07 (10.5%)	33 (09.2%)
50 to 59 years	142 (48.8%)	35 (52.2%)	177 (49.5%)
60 to 69 years	94 (32.3%)	21 (31.3%)	115 (32.1%)
70 years and above	29 (10.0%)	04 (06.0%)	33 (09.2%)

Table 3: Density of the breast parenchyma in the different age groups.

Density of breast parenchyma	Age categories				Total N=358
	40-49 years n=33	50-59 years n=177	60-69 years n=115	≥70 years n=33	
Fatty	0	8 (4.5%)	05 (4.3%)	03 (9.1%)	16 (4.5%)
Scattered fibroglandular	11 (33.3%)	100 (56.5%)	75 (65.2%)	22 (66.7%)	208 (58.1%)
Heterogenous dense	18 (54.6%)	63 (35.6%)	30 (26.2%)	7 (21.2%)	118 (32.9%)
Dense	04 (12.1%)	05 (3.4%)	06 (4.3%)	1 (3.0%)	16 (4.5%)

Table 4: Age distribution of women with the abnormalities detected in mammogram.

Variable	Age categories				Total N=358
	40-49 years n=33	50-59 years n=177	60-69 years n=115	≥70 years n=33	
Mass or lesion detected					
Benign lesions	-	06	02	-	08
Malignant lesions	01	-	-	-	01
Vascular calcification					
Unilateral	-	05	08	02	15
Bilateral	03	41	54	24	122
Other types of calcifications					
Coarse calcification	-	03	05	01	09
Popcorn calcification	-	-	01	-	01
Punctate calcification	01	02	-	01	04
Central lucent calcification	01	02	03	-	06

DISCUSSION

Mammography was done in a mobile unit, in the midst of the community. The camps were organised between the period of January and March or November and December. There were three main reasons for selecting this period. A waiting period was involved in the open space. Therefore monsoon season was avoided and a cooler climate was preferred to maximise participation. Secondly in summer seasons, many women visit their native place, so there are less number of women in the community. Festival season from Ganesh Chaturthi till Diwali was avoided as participation is generally poor during festival seasons.

The age of the 358 participants who underwent screening ranged from 40 to 90 years. Of these 358 women, 146 had some abnormalities detected in the mammogram. One woman aged 40 years, was diagnosed with malignancy.

The number of beneficiaries in eight camps of urban area were 291 and those of two camps in rural area were 67 in number. The awareness and identification of these 358 beneficiaries was done by trained health care workers and local health care providers in urban and rural areas respectively. The behavioural change of undergoing mammography for breast cancer can be attributed to the house to house health education and follow up by HCW in urban area and the health education by the health care provider in rural area. Though we got a good response to the camp as planned, the amount of efforts required to be put in by the outreach team was disproportionately high. Even though the camps were free, several reminders were given to the women not only a day prior to the camp, but also on the day of the camp. Women who had confirmed to participate, also did not report at scheduled appointment time. Phone calls and reminders had to be given and readjustment of appointments had to be done for several participants.

A study conducted by Kumar et al, demonstrated the effective role of reaching out to the public by means of word of mouth, health care workers, handouts etc.¹³ The week long screening camp conducted as part of the study by Kumar et al was able to attract significantly more females (118) than the number of cases of mammography in the institute in previous six months (98).¹³ This signifies most of the females were unlikely to undergo mammography and clinical breast examination, if not for the awareness created by the camp.¹³ In this study it is also reported that screening mammography camps help in reaching out to the public, increase awareness and helped mobilize women to seek medical care.¹³

In another Indian study, amongst 25 of women above age of 40 years, who were recommended for mammogram, only 16 women in this age group opted for a mammogram.¹⁵

Maximum participants were in the age group of 50 to 70 though the range was 40 to 90 years in the present study. The eligibility criteria, availability at the time of camp, and educational background could be possible factors influencing the age distribution result. The additional health services provided in camp, coupled with transport facilities arranged especially for rural area may also have affected the participants' age distribution. In an Indian study conducted by Kumar et al, a total of 118 women, ranging from 35 to 64 years of age with mean age of 49.6 years underwent mammography.¹³

A large segment of the urban slum and rural population, do not know their accurate age and tend to give an approximate age at the time of interview. There is a possibility of bias in reporting age by the study participants.

Of the 33 women in the age group 40 to 49 years, 22 (66.6%) had dense parenchymal findings on the mammogram in the present study. The density of breast parenchyma was reported as scattered fibroglandular in 208 (58.1%); heterogeneous dense in 118 (32.9%) and dense in 16 (4.5%) participants in the present study which are similar to the findings by Kumar et al. The study by Kumar et al, reported scattered fibroglandular densities (61.8%), and heterogeneous and extremely dense (25.4%) breast composition in their study which were further evaluated with sono-mammography.¹³ In present study, bilateral and unilateral calcification was detected in 122 and 8 women respectively.

Though a total of 146 (40.8%) women had abnormal findings in the mammogram in the present study, only one case of malignancy was detected in the present study. In a study by Reddy et al, using a camp approach, of the 68 participants screened by them, not a single new case of breast cancer was detected in the camp, though there were two cases of breast cancer recurrence.¹⁵

In the studies by Kumar et al six (5.1%) new cases of breast carcinomas were detected during this Indian study and 28 (23.7%) cases with probably benign findings were advised short interval follow up.¹³ In the Kannur district, amongst the 4335 women screened 23 cases of breast cancer were detected.¹⁶ At a tertiary hospital in Mumbai, 83 breast cancers cases were detected in Mumbai amongst the 3547 women who reported for screening from the community after awareness programmes were conducted in the community.¹⁷ The difference in detection rate of malignancy in present study and other studies could be attributed to differential eligibility criteria and risk profile of study participants.

Limitation of the study include a smaller number of participants in rural area, as compared to urban area. Only selective health services and lack of follow up care in rural area affected the planning of the number of camps and participation of beneficiaries.

CONCLUSION

The project successfully conducted eight camps in urban area and two in rural area, screening 358 women in total with one case of breast cancer detected as a result of screening. Even though organising camps requires tremendous efforts, mammography camp approach may be the only way to provide access to women in urban and rural areas for breast cancer screening and awareness.

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