

# Awareness of Breast Cancer & Breast Self-Examination among Rural Women in Western India – A Cross Sectional Study

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## ABSTRACT

### BACKGROUND

Breast cancer is becoming the most common cancer among women in the world. It is estimated that about 2.1 million new cases were diagnosed in the year 2018. When breast cancer is detected early, there is a good chance of cure. Early detection of the disease remains the cornerstone of breast cancer control. Breast self-examination (BSE) and awareness have a major role in early detection of this cancer. The purpose of this study was to determine the awareness of breast cancer & breast self-examination among the rural women in western India.

### METHODS

This cross-sectional study was conducted in rural field practice area of Medical College in western India. Out of 19 villages three villages were selected by simple random sampling method and participants in the selected village were identified by systematic random sampling method. A standardized Marathi questionnaire was used, containing demographic profile, knowledge and impressions about breast cancer and BSE. Analysis was done by Microsoft excel 2007 and Epi Info 7.2.

### RESULTS

Out of 522 women, 249 (47.70 %) were know or heard about breast cancer and only 111 (21.26 %) ever heard about breast self-examination (BSE). Out of 111 women ever heard about BSE only 12 (10.51 %) were performing BSE; of which 03 (2.87 %) were doing BSE daily, 03 were weekly, 04 were monthly and 02 were very rarely. Most of the women, 186 (76 %) perceived balanced diet was good for prevention of breast cancer, followed by breast self-examination 167 (68.42 %). Most of the 200 (81.87 %) women responded that medical treatment is the main treatment for breast cancer, followed by surgical treatment 142 (57.89 %), radiotherapy 127 (52 %), spiritual and traditional treatment was 14 - 20 (6 - 8 %).

### CONCLUSIONS

Awareness about breast cancer was considerable but there was poor knowledge about BSE and risk factors among the rural women in western India.

### KEYWORDS

Breast cancer, Breast self-examination, Awareness, Rural, Prevention

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## BACKGROUND

Breast cancer is becoming most frequent cancer among women in the world. It is estimated that about 2.1 million new cases were diagnosed in year 2018. It is also the most common cancer among women in developing countries. In India, breast cancer was estimated to cause 6.1 deaths/100000 populations in the year 2016. The survival rate decreased by 2.7 times for breast cancer, in case of detection at stage IV as against stage I. A total of 80,700 women died of breast cancer in 2016 in India.<sup>1</sup> Currently it is observed that there is not sufficient knowledge on the causes and detection of breast cancer. Early detection of the disease remains the cornerstone of breast cancer control. When breast cancer is detected early, and if adequate diagnosis and treatment are available, there is a good chance that breast cancer can be cured.<sup>2</sup> To overcome this early detection (stage I & II) of breast cancer is required. Breast cancer awareness and breast self-examination have a major role in early detection of this cancer.

Multiple risk factors like family history and genetic factors are responsible for developing breast cancer and may act synergistically. Other factors such as early menarche, late menopause, and a late age at first childbirth showed positive association with increased incidence of breast cancer. Women using oral contraceptive (OC) pills or hormone replacement therapy are at a greater risk than others. Lack of breast feeding is also associated with it. Lifestyle factors such as diet, physical activity, overweightness, and obesity also affect the occurrence of breast cancer.<sup>3</sup>

Recommended preventive techniques to reduce breast cancer mortality and morbidity include breast self-examination, clinical breast examination (CBE), and mammography.<sup>4</sup> CBE and mammography require hospital visit and specialized equipment and expertise whereas BSE is an inexpensive tool that can be carried out by women themselves.<sup>5</sup> BSE benefits women in two ways: women become familiar with both the appearance and the feel of their breast and detect any changes in their breasts as early as possible.<sup>6</sup> Therefore preventive measures remains the cornerstone of the fight against breast cancer world. Although some preventive measures have been available, but many of them remain inaccessible to women in developing countries who, need prevention the most. Breast self-examination, although not having been shown to be effective in reducing mortality,<sup>7</sup> is still recommended as a general approach to increasing breast health awareness and thus potentially allows for early detection of any anomalies.<sup>8</sup> Furthermore, many health care practitioners continue to recommend BSE, because it is free, painless and easy to practice. India is concerned, there is very little data available indicating the uptake and practice of BSE. There are very little data available in literature concerning women's knowledge about breast cancer, their knowledge on BSE and their practice of BSE in rural area.

Study of the rural women's knowledge on breast cancer and BSE as well as their practice of BSE would be helpful in the planning of various measure of interventions pertaining to screening breast cancer for its early detection. Therefore,

this study was conducted on breast cancer awareness and breast self-examination.

## Objectives

1. To know awareness about breast cancer in rural women
2. To assess their impression on the breast self-examination
3. Describe their perceptions on the causes, risk factors and prevention of breast cancer

## METHODS

This cross-sectional study was conducted in rural field practice area of Medical College in western India from October 2020 to December 2020. To be eligible, women had to be aged 18 years or more, consenting and be willing to participate in study. Rural health training centre (RHTC) of medical college is catering health services to 19 villages whose total population is 29921. Out of 19 villages three (3) villages (Kusgaon BK Population 2495, Olkaiwadi population 2676 and Aundhe (BK) Population 1281) were selected by random sampling method whose population is more than 1000 from rural health training centre area of Medical College. Sample of 522 (Kusgaon BK = 180, Olkaiwadi = 182 and Aundhe (BK) = 160) eligible participants were selected considering 50 % prevalence. Sample size was calculated with help of formula as below:

$$n = [DEFF * Np(1 - p)] / [(d2 / Z21 - \alpha/2 * (N - 1) + p * (1 - p))]$$

Where  $n'$  = sample size,  $N$  = Population size,  $Z$  = Z statistic for a level of confidence 95 %  $P$  = Expected proportion  $DEFF$  = Design Effect (97 % confidence level & 5 % absolute precision). Estimated sample size was calculated to be 471. Considering non-response rate of 10 %, total 522 subjects were enrolled in the study.

Medical social workers (MSW) were oriented about objectives, study design and importance of research project. They were also trained for collection of data from participants (women). Participants were visited in the morning time at their houses by medical social worker in randomly selected villages. Participants were identified by systematic random sampling method. Every fifth house was selected and questionnaire was filled by/from youngest adult female in house. If response was not received from any house next house was selected.

A standardized Marathi questionnaire was used to collect the data. This questionnaire had three sections: demographic profile, knowledge and impressions about BSE, and a section on knowledge about breast cancer. The questionnaire was self-administered, consenting participants for participation in the study after prior explaining the nature and objectives of the present study, were given printed copies of the questionnaire and required time to fill their responses at their will and convenience, and in a private, confidential setting. Participants then returned these questionnaires anonymously to the researcher. Medical social workers and researchers helped illiterate participants to fill the questionnaire. No participant was excluded

because of the inability to read or write. The participants were requested to fill out the questionnaire in presence of the investigator or medical social workers of the study, so as to clarify doubts if any.

**Statistical Analysis**

Data was collected, compiled and tabulated with the help of Microsoft excel 2007. The analysis of variables was done using proportion and association between attributes was tested by chi - square test with the help of Epi Info 7.2 and Open – Epi statistical software. The P value less than 0.05 was taken as significant.

**Ethics Statement**

Ethical approval to conduct this study was obtained from the institutional ethics board. Voluntary and verbal consent was obtained from all women who agreed to participate. An information sheet and a full explanation of the purpose of the study was given to each participant. They were assured that their collected data will be kept confidential and only used for research purposes and also their participation would be anonymous and identifying information would not be collected.

**RESULTS**

Total 522 women had participated in the study. Out of 522 women, 312 (59.77 %) were in 18 - 30 year age group followed by 93 (17.82 %) in 30 - 40 year age group, 66 (12.64 %) in 51 – 60 year, 36 (6.9 %) in 41 - 50 year age group and only 15 (2.87 %) were in above 60 year age group.

Out of 522, majority of 219 (41.95 %) were secondary educated, 105 (20.11 %) were primary educated, 81 (15.52 %) were higher secondary certificate (HSC) and only 51 (9.77 %) were graduate and post graduate. Still 66 (12.64 %) women were illiterate. Majority of women 483 (92.54 %) were Hindu followed by 18 (3.45 %) were Buddhist, 15 (2.87 %) were Muslims and 6 (1.15 %) were Christian by religion.

Out of 522 women, majority 450 (86.71 %) were house wives followed by 51 (9.83 %) were doing service (job). Still 330 (63.22 %) women were staying in joint family and 189 (36.21 %) were in nuclear family.

Out of 522 women, 249 (47.70 %) were knowing or had heard about breast cancer and only 111 (21.26 %) ever heard about breast self-examination (BSE). (Table no. 1) Out of 111 women ever heard about BSE, only 12 (10.51 %) were performing BSE of which 03 (2.87 %) were doing BSE daily, 03 weekly, 04 monthly and 02 rarely. May be 6 of them were doing it monthly or yearly. (Table no. 2)

Do You Know / Have You Heard about Breast Cancer	Frequency	Percentage
Yes	249	47.70
No	273	52.30
<b>Total</b>	<b>522</b>	<b>100</b>

*Table 1. Awareness about Breast Cancer*

Ever Heard about Breast Self-Examination (BSE)	Frequency	Percentage
Yes	111	21.26
No	411	78.74
<b>Total</b>	<b>522</b>	<b>100</b>

*Table 2. Awareness about Breast Self-Examination*

Risk Factors	Frequency	Percentage
Age	167	68.42
Family history	109	44.44
Early or Late conception (< 18 / > 30)	69	28.07
Tobacco use any form	26	10.53
Alcohol	20	8.19
Lack of exercise	17	7.02
Use of hair dye	0	0.00
Excessive nonvegetarian food	0	0.00
Drinking oxytocin containing milk	0	0.00
Others	0	0.00

*Table 3. Awareness about Risk Factors for Breast Cancer*

Treatment of Breast Cancer	Frequency	Percentage
Medical treatment	200	81.87
Surgical	142	57.89
Radiotherapy	127	52.05
Traditional treatment	20	8.19
Spiritual	14	5.85
Not responded	14	5.85
All	3	1.17
Other	0	0.00

*Table 4. Awareness about Treatment of Breast Cancer*

Prevention of Breast Cancer	Frequency	Percentage
Balanced Diet	186	76.00
Breast self-examination (BSE)	167	68.42
Exercise	107	43.86
Vaccination	70	28.65
Others	6	2.34
Not answered	9	3.51

*Table 5. Awareness about Prevention of Breast Cancer*

Do You Know or Heard about Breast Cancer					
Educational level	Yes	%	No	%	Total
Illiterate	6	8.3	66	91.7	<b>72.0</b>
Primary & secondary	156	49.1	162	50.9	<b>318.0</b>
HSC & above	87	65.9	45	34.1	<b>132.0</b>
<b>Total</b>	<b>249</b>	<b>47.7</b>	<b>273</b>	<b>52.3</b>	<b>522.0</b>

*Table 6. Association between Educational Level and Awareness about Breast Cancer*

$\chi^2=62.51, df=2, P=0.000$

Ever Heard about Breast Self-Examination (BSE)					
Occupation	Yes	%	No	%	Total
Housewife	84	18.7	366	81.3	<b>450 (100)</b>
Service	30	41.7	45	62.5	<b>72 (100)</b>
<b>Total</b>	<b>114</b>	<b>21.8</b>	<b>411</b>	<b>78.7</b>	<b>522 (100)</b>

*Table 7. Association between Occupation and Awareness about Breast Self-Examination*

$\chi^2=13.15, df= 1, P=0.0001$

Out of total women, most of them 167 (68.42 %) were perceived that age is the main risk factor for breast cancer followed by family history of breast cancer 109 (44.44 %), early or late conception 69 (28 %), tobacco use in any form 26 (10.53 %), alcohol 20 (8 %), lack of exercise 17 (7 %). (Table no. 3)

Most of the 200 (81.87 %) women responded medical treatment is the main treatment for breast cancer, followed by surgical treatment 142 (57.89 %), radiotherapy 127 (52 %), spiritual and traditional was 14 - 20 (6 - 8 %). (Table no. 4).

Most of the women 186 (76 %) perceived balanced diet to be good for prevention of breast cancer, followed by breast self-examination 167 (68.42 %), exercise 107 (43.86 %), vaccination 70 (28.65 %). (Table no. 5)

Awareness about breast cancer was more in age group between 18 - 30 year as compared to 31 - 40 year and above 40 year. This difference was statistically significant. ( $\chi^2 = 23.09$ ,  $df = 1$ ,  $P = 0.000$ ). Awareness about breast cancer in higher educated woman was more as compare to illiterate and lower educated woman. This difference was statistically significant. ( $\chi^2 = 62.51$ ,  $df = 2$ ,  $P = 0.000$ ). (Table no. 6) Awareness about breast cancer was more in women who were doing service (job) as compare to who were housewife. This difference was statistically significant. ( $\chi^2 = 12.04$ ,  $df = 1$ ,  $P = 0.005$ ).

Awareness about breast cancer was more in nuclear family when compare to joint family. This difference was statistically significant. ( $\chi^2 = 23.96$ ,  $df = 1$ ,  $P = 0.000$ ). There was no statistically significant difference between religion and breast cancer awareness. ( $\chi^2 = 1.44$ ,  $df = 1$ ,  $P = 0.230$ ).

Awareness about breast self-examination was more in age group between 18 - 30 year as compare to 31 - 40 year and above 40 years of age group. This difference was statistically significant. ( $\chi^2 = 6.71$ ,  $df = 1$ ,  $P = 0.034$ ). Awareness about breast self-examination was more in higher educated woman when compared to illiterate and lower educated woman. This difference was statistically significant. ( $\chi^2 = 20.67$ ,  $df = 2$ ,  $P < 0.000$ ). Awareness about breast self-examination was more in females who were doing service (job) when compared to housewife. This difference was statistically significant. ( $\chi^2 = 13.15$ ,  $df = 1$ ,  $P = 0.0001$ ). (Table no. 7) Awareness about breast self-examination was more in females who were living in nuclear family when compared to joint family. This difference was statistically significant. ( $\chi^2 = 24.19$ ,  $df = 1$ ,  $P = 0.000$ ). There was no statistically significant difference between religion and breast self-examination ( $\chi^2 = 2.27$ ,  $df = 1$ ,  $P = 0.065$ ).

## DISCUSSION

Approximately 50 % women were aware about breast cancer but because of insufficient knowledge and misperceptions on its risk factors, causes and infrequent practice of breast self-examination, it leads to breast cancer. Awareness about breast cancer and regular practice of BSE facilitates early detection of breast cancer. It also improves the chances of survival as well as better health outcomes. In this study, 249 (47.70 %) were know or had heard about breast cancer and only 111 (21.26 %) had ever heard about breast self-examination (BSE). Out of 111 (21.26 %) women ever heard about BSE, only 12 (10.51 %) were performing BSE; of which 03 (2.87 %) were doing BSE daily, 03 were weekly, 04 were monthly and 02 were rarely; may be 6 monthly or yearly. Similar findings were found in study conducted in north India about breast cancer awareness but awareness about breast self-examination is very low in our study as compared to study conducted in North India and Buea Cameroon.<sup>9,10,11,12,13,14</sup>

As our study was conducted in rural area education, type of family, availability of privacy may affect the breast self-examination. India's concern is that most of the women seek medical care at the advanced stages of cancer when the mortality rate or morbidity is high. There were several

reasons for late reporting, out of which lack of awareness, poor health seeking behaviour and shyness on part of patients are major ones. Awareness about breast cancer was more in age group of 18 - 30 year as compare to older age women. This may be due to women between 18 - 30 year were more educated than older women. Recent generation is more focusing on education. Education increases the knowledge about breast cancer and breast self-examination. Educated women have more opportunities for jobs. When there is an interaction between women at workplace then there will be a sharing of knowledge. This also leads to improved awareness about breast cancer in working (service) women as compared to the housewife. Educated and nuclear family women were more aware about breast self-examination when compare to less educated/uneducated and joint family women. Education plays an important role in improving health status of human beings. Women living in nuclear family had more privacy as compared to women living in joint family. These factors may affect the breast self-examination.

Most of the 173 (70.76 %) women perceived that microbial agents were the main cause for breast cancer followed by familial 123 (50.29 %), weight gain after menopause 89 (36.26), X-ray exposure before 30 year 74 (30.41 %), long term OC pills 80 (32.75 %), hormonal replacement therapy 39 (15.79 %) but study conducted in Cameroon exposure to radiation ( $N = 179$ , 58.9 %), hormone replacement therapy ( $n = 177$ , 58.2 %), smoking ( $N = 177$ , 58.2 %), alcohol consumption ( $N = 142$ , 46.7 %) and high fat diet ( $N = 138$ , 45.4 %) were the most frequently indexed risk factors for breast cancer. Geographical, educational, socioeconomic, demographic and health system of that state may affect the knowledge of women.<sup>13</sup> Out of total women, most of the women 167 (68.42 %) were perceived that age was the main risk factor for breast cancer followed by family history of breast cancer 109 (44.44 %), early or late conception 69 (28 %), tobacco use in any form 26 (10.53 %), alcohol 20 (8 %) and lack of exercise 17 (7 %). Similar findings were reported by study conducted in Jamshedpur India<sup>7</sup> but Witchcraft was implicated as a potential cause of breast cancer by a third ( $N = 106$ , 34.9 %) of the respondents which is not reported in our study.<sup>10</sup> Most of the 200 (81.87 %) women responded that medical treatment was the main treatment for breast cancer, followed by surgical treatment 142 (57.89 %), radiotherapy 127 (52 %), spiritual and traditional was 14 - 20 (6 - 8 %). Our finding was not matching with study conducted in Jamshedpur India as our study group reported multiple answeres.<sup>10</sup> Our findings for medical treatment were similar to the findings of Cameroon study but spiritual healing and other treatment were not similar as Cameroon women as they look like more spiritual.<sup>13</sup>

## CONCLUSIONS

Study shows awareness regarding breast cancer was considerable but there was poor knowledge about risk factors and breast self-examination. Only few women knew

that breast self-examination is most sensitive and cost-effective method for early detection of cancer and very few of them practiced it regularly. Therefore, it is important to educate the women right from the age of adolescence in the form of formal education as well as informal education about breast cancer and its risk factors, eliminate the misconception and promote breast self-examinations for early detection. This will help to decrease mortality in Indian women.

In India, breast cancer is a topic that is not freely discussed because of the ignorance and cultural taboo. Hence, there is urgent requirement to develop a more effective nation and state-wide cancer literacy programs, as well as engagements with health systems and community-level organizations. Health education programs should be conducted at the school-college level, regarding various aspects ranging from risk factors and various methods of screening. BSE should be encouraged actively especially in women with a family history, obesity and OC Pills.

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