

# Public Awareness of Cancer Risk Factors and Symptoms: A Population-Based Assessment

Asawari Deshmukh<sup>1</sup>, Sanika Deshmukh<sup>2</sup>

<sup>1</sup>MD Radiodiagnosis, Dhruv X Ray, Sonography And Mammography Diagnostic Centre

<sup>2</sup>Post Graduate Student, Dhruv X Ray, Sonography And Mammography Diagnostic Centre

**Abstract:** ***Background:** The most prevalent malignancy is breast cancer (BC). BC was the cause of 10.6% of deaths in India and 13.5% of all cancer diagnoses, according to Globocan 2020. In this study, female patients in an urban private clinic in Central India were asked to rate their awareness and knowledge of breast cancer risk factors, symptoms, and screening procedures. **Materials & Methods:** A cross-sectional survey was conducted from July to December 2022 on a sample of 75 participants at an Urban private clinic in Central India. **Results:** Out of 75 participants in the study, 50 (66.6%) were unaware of any risk factors for breast cancer, which is the majority. Only 6 (8%), 4 (5.2%), and 3 (4%) recognised that having a first child after the age of 30 was a risk factor for breast cancer, as well as the family history of the disease. Three (4%) also knew that having a late menopause was a risk factor. The majority of subjects, 64 in total (85.3%), were unaware of any breast cancer symptoms. Three respondents (40%) knew all the symptoms of breast cancer, four subjects (40%) knew about painless lumps in the breast or armpit as a symptom, and two individuals (2.6%) knew about changes in the size, shape, or colour of the breast as a symptom. Similar to this, 6 (8%) of the individuals knew about mammography, while 60 (80%) of the subjects had no knowledge of any procedure. While only 2 (2.6%) of the individuals were aware of self-breast examination, 5 (6.6%) of the subjects were aware of all screening and detection strategies for breast cancer. **Conclusion:** Participants in the current study had extremely limited understanding of risk factors, symptoms, and screening and preventative techniques. Programmes to increase public awareness are desperately needed.*

**Keywords:** breast cancer, risk factor, symptoms, prevention, screening

## 1. Introduction

Cervix, breast, and oral cavity cancer in females are most prevalent in India. In India, breast cancer accounts for 19% to 34% of all instances of cancer in women. It is more prevalent among urban residents than rural ones.<sup>1</sup>

It is common knowledge that breast cancer can spread to distant structures. Overall survival (OS) at 5 and 10 years was 79% and 66%, respectively. The breast cancer-specific survival rate (BCSS) at 5 and 10 years was 79% and 70%, respectively. After the original malignancy was treated, the 15-year follow-up showed that the OS and BCSS were 51% and 58%, respectively.<sup>2</sup>

Breast cancer risk factors include early menarche, delayed menopause, advanced age at first pregnancy, and nulliparity. Breast cancer risk is increased by 3% for every additional year after menopause. Each extra birth and each 1-year delay in menarche reduce the risk by 5% and 10%, respectively.<sup>3</sup>

In developed nations, the prevalence of breast cancer is higher than in India among people over 50. It affects younger age groups in India.<sup>4</sup>

BRCA1 or BRCA2 genes are inherited in an autosomal dominant fashion, which significantly increases the risk of developing breast cancer. BRCA1/2 mutations are responsible for 20–25% of hereditary breast cancers and 5%–10% of all breast cancers. On chromosomes 13q12 and 17q21, the seven BRCA1 and BRCA2 genes are located, respectively.<sup>5</sup> There are high-grade invasive ductal carcinomas linked to BRCA2.<sup>6</sup>

Mammography, clinical breast examinations, and breast self-examinations are the principal screening and early detection techniques.<sup>8</sup>

The American Cancer Society and other top cancer organisations advise women to get monthly BSE.<sup>9</sup>

Ultrasonography is a non-invasive method of breast examination that is safe because it contains no ionising radiation. It complements other diagnostic examinations and aids in doing a biopsy under USG guidance. It has low specificity.<sup>10</sup>

USG sensitivity in detecting neoplastic lesions is only 36%.<sup>10</sup> Ultrasonography differentiates between cystic lesions and solid lesions and helps in the evaluation.<sup>11</sup>

Mammography is still considered the best for diagnosing breast cancer at its early stage so the chance of survival treatment possibilities is the best.<sup>12</sup>

Delayed breast cancer diagnosis in developing countries is due to poor awareness of breast cancer and barriers to access to healthcare services.<sup>13</sup>

According to the Breast Health Global Initiative (BHGI) reports, if females have adequate education and awareness of breast self-examination (BSE), breast cancer could be diagnosed at an early stage.<sup>14</sup>

## Aims & Objectives

To assess the level of knowledge regarding the risk factors, symptoms, and screening of breast cancer in the female population.

## 2. Materials & Methods

A cross - sectional survey was carried out from July to December 2022 on a sample of 75 participants to assess the level of knowledge and awareness of the risk factors, symptoms, screening of breast cancer & practices for the prevention of breast cancer. A sample size of 72 participants was considered sufficient to estimate the true proportion of awareness among the study population with 15% precision and 99% confidence level (Reference Radi SM et al 2013 study). Hence a consecutive sample of 75 participants was included in this study with the following inclusion and exclusion criteria.

### Inclusion criteria

- Female patients & their relatives 18 - 65 years of age
- Females willing to participate in the study

### Exclusion criteria

- Females <18 years & >65 years
- Females not willing to participate in the study

Study participants were included in the study by using a purposive sampling technique. Consent was taken from all the study subjects. A semi - standardized questionnaire was used to note demographic features, knowledge of risk factors, symptoms & screening of breast cancer.

Data were collected & entered in an Excel sheet.

**Table 1: Questionnaire**

Demographic data: age, Education
Knowledge of risk factors
Knowledge of symptoms
Knowledge of screening & methods of prevention

**Table 4: Knowledge regarding risk factors for breast cancer**

Knowledge of risk factors for breast cancer	No. of study subjects n=75	Percentage	95% Confidence Interval (CI)
Past history of breast cancer	6	8%	2.99 – 16.6%
Family history of breast cancer	3	4%	8.3 – 11.2%
Taken O. C. pills or HRT	1	1.4%	0.0 - 7.2%
Obesity	1	1.4%	0.0 - 7.2%
Having a close relative with breast cancer	4	5.3%	1.5 – 13.1%
First menstruation before 12 years	0	0%	0
First child after 30 years of age	6	8%	2.99 – 16.6%
Late menopause	3	4%	8.3 – 11.2%
All of the above	1	1.4%	0.0 - 7.2%
Don't know	50	66.6%	54.8 – 77.1%

In the present study, out of 75 subjects, the majority i. e., 50 (66.6%, 95% CI 54.8 – 77.1%) did not know about any risk factor for breast cancer. 6 (8%, 95% CI 2.99 – 16.6%) each knew a past history of breast cancer & first child after 30 years of age as risk factors, 4 (5.3%, 95% CI 1.5 – 13.1%) knew a close relative with breast cancer as a risk factor, 3

### Statistical analysis

Data were coded and analyzed with the statistical software, STATA, version 10.1 (2011) by Stata Corp, Texas, USA. Descriptive statistics included summary measures like Mean, Standard Deviation, and frequency/percentages. The proportion of awareness was estimated in percentage along with 95% Confidence Intervals (CI).

## 3. Results

**Table 2: Age distribution of study subjects**

Age distribution of study subjects	No. of study subjects n=75	Percentage
<30 years	6	8%
31 - 40 years	24	32%
41 - 50 years	26	34.6%
>50 years	19	25.4%

In the present study, out of 75 subjects, the majority, i. e., 26 (34.6%), were from the 41 - 50 age group, followed by 24 (32%) in the 31 - 40 age group. 19 (25.4%) were more than 50 years of age while 6 (8%) were below 30 years. (Table 2)

**Table 3: Education of study subjects**

Education of study subjects	No. of study subjects n=75	Percentage
Illiterate	5	6.7%
High school	21	28%
Graduate	31	41.3%
Postgraduate	18	24%

In the present study, out of 75 subjects, the majority i. e., 31 (41.3%) subjects were graduates followed by 21 (28%) subjects who were educated till high school. 18 (24%) subjects were postgraduates while 5 (6.7%) subjects were illiterate. (Table 3)

**Table 5: Knowledge about symptoms of breast cancer**

Knowledge about symptoms of breast cancer	No. of study subjects n=75	Percentage	95% CI
Change in shape or size or color of breast	2	2.6%	0.3 – 9.3%
Dimpling of breast	1	1.4%	0.0 - 7.2%
Loss of appetite & weight	1	1.4%	0.0 - 7.2%
Painless lump in breast or armpit	4	5.3%	1.5 – 13.1%
All of the above	3	4%	8.3 – 11.2%
Don't know	64	85.3%	78.4 - 94.4%

(4%, 95% CI 8.3 – 11.2%) knew Family history of breast cancer & late menopause as risk factors while 1 (1.4%, 95% CI 0.0 - 7.2%) each knew taking O. C. pills or HRT, obesity as risk factors. Only 1 (1.4%, 95% CI 0.0 - 7.2%) subject knew about all the risk factors of breast cancer. (Table 4)

In the present study, out of 75 subjects, the majority i. e., 64 (85.3%, 95% CI 78.4 - 94.4%) subjects did not know about any symptoms of breast cancer. 4 (5.3%, 95% CI 1.5 - 13.1%) knew painless lumps in the breast or armpit as a symptom, 3 (4%, 95% CI 8.3 - 11.2%) subjects knew all symptoms of breast cancer, 2 (2.6%, 95% CI 0.3 - 9.3%)

subjects knew changes in shape or size or color of the breast as a symptom while 1 (1.4%, 95% CI 0.0 - 7.2%) each knew dimpling of breast & loss of appetite & weight as symptoms of breast cancer. As most patients are asymptomatic or with painless lesions, the importance of screening is negligible. (Table 5)

**Table 6:** Knowledge regarding methods for screening & detection of breast cancer

Knowledge of methods of screening & detection of breast cancer	No. of study subjects n=75	Percentage	95% CI
Self - breast examination	2	2.6%	0.3 - 9.3%
Clinical breast examination	1	1.4%	0.0 - 7.2%
Mammography	6	8%	2.99 - 16.6%
Biopsy	1	1.4%	0.0 - 7.2%
Don't know	60	80%	69.2 - 88.4%
All of the above	5	6.6%	2.2 - 14.9%

In the present study, out of 75 subjects, 60 (80%, 95% CI 69.2 - 88.4%) subjects did not know about any method followed by 6 (8%, 95% CI 2.99 - 16.6%) subjects who knew about mammography. 5 (6.6%, 95% CI 2.2 - 14.9%) subjects had knowledge of all methods of screening & detection of breast cancer while 2 (2.6%, 95% CI 0.3 - 9.3%) subjects knew about the self - breast examination, while 1 (1.4%, 95% CI 0.0 - 7.2%) subject each knew about clinical breast examination & biopsy. (Table 6)

#### 4. Discussion

In the present study, out of 75 subjects, the majority, i. e., 26 (34.6%), were from the 41 - 50 age group, followed by 24 (32%) in the 31 - 40 age group. 19 (25.4%) were more than 50 years of age while 6 (8%) were below 30 years. (Table 2). Giri R et al found that out of 262 females, the majority of the respondents (29.4%) were in the 3rd decade of life followed by the 2nd decade of life (26%). The mean age was 36 years.<sup>15</sup>

In the present study, out of 75 subjects, the majority i. e., 31 (41.3%) subjects were graduates followed by 21 (28%) subjects who were educated till high school. 18 (24%) subjects were postgraduates while 5 (6.7%) subjects were illiterate. (Table 3)

Radi SM et al found that the mean age of Saudi females was 32.3±10.9 & had college - level education They were unemployed, and there was no family history of breast cancer.<sup>16</sup>

In the present study, out of 75 subjects, the majority i. e., 50 (66.6%) did not know about any risk factor for breast cancer. 6 (8%) each knew a history of breast cancer & first child after 30 years of age as risk factors, 4 (5.2%) knew a close relative with breast cancer as a risk factor, 3 (4%) knew the family history of breast cancer & late menopause as risk factors while 1 (1.4%) each knew taking O. C. pills or HRT, obesity as risk factors. Only 1 (1.4%) subject knew about all the risk factors of breast cancer. (Table 4)

Radi SM et al found that 57.5% of participants said that family history and having a close relative with breast cancer were risk factors. 41% were aware of alcohol and 35.5% of hormone replacement therapy as risk factors.<sup>16</sup>

Prusty RK et al found that 45% & 44% of women believed consumption of excess tobacco and alcohol was a risk factor for breast cancer. History of breast cancer (39%), no breastfeeding (39%), consumption of high - fat foods (34%), and family history (31%) were considered risk factors. The knowledge of early age of menstruation (6%) and late menopause (10%) were very low.<sup>17</sup>

In the present study, out of 75 subjects, the majority i. e., 64 (85.3%) subjects did not know about any symptoms of breast cancer. 4 (5.3%) knew about painless lumps in the breast or armpit as a symptom. (Table 5)

Prusty RK et al found that a lump in the breast was known as a symptom of breast cancer by three - fourths of women. Less than 50% of women said abnormal discharge or blood from the nipple (48%), change in shape or size of the nipple (48%), and change in skin color (47%) as symptoms of breast cancer.<sup>17</sup>

Abbas MO et al found that the most recognized symptom was the appearance of a new lump in the breast or armpit area 95.8%. It was followed by any changes in the size or shape of the breasts 76%. The last known symptom of 52.6% was pulling in the nipple or pain in the nipple area.<sup>18</sup>

In the present study, out of 75 subjects, 60 (80%) subjects did not know about any method followed by 6 (8%) subjects who knew about mammography. 5 (6.6%) subjects knew all methods of screening & detection of breast cancer. (Table 6)

Binhussien BF et al found that BSE and CBE were the methods of early detection of breast cancer answered by 60.9% of women & said BSE should start at the age of 20 years and should be done monthly. Most women have heard about CBE (53.1%) but only 26.6% know that CBE should be done yearly. 43% of women have heard of mammography, but only 25% knew that 45 years is the recommended age for mammography.<sup>19</sup>

Madhukumar S et al found that out of 1030 women, only 185 (18%) women knew about BSE. Out of these 185 women, only 107 practiced it regularly. 26 women do it monthly and the rest do the examination very irregularly.<sup>20</sup>

## 5. Conclusion

In the present study, participants had very poor knowledge about risk factors, symptoms & methods of screening & prevention.

There is an urgent need for awareness and education programs for the general population.

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