

# Awareness Of Risk Factors And Aspects of Breast Cancer Among North Indian Women

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## Abstract

**Objectives:** To determine the knowledge of women about breast cancer and its risk factors. **Study design:** Community based descriptive cross sectional analysis. **Setting:** Field practice and adjoining areas of urban health training center of Department of community medicine, Government medical college and hospital, Chandigarh. **Study subjects:** Women more than 30 yrs of age of Chandigarh, North India. **Main outcome measures:** Women's demographics, knowledge about breast cancer, risk factors, treatment, detection and preventive modalities. **Results:** All the respondents had heard of breast cancer. Awareness about breast mass/lump to be cardinal symptom of breast cancer was known to 47.2% (463) of respondents. The two main causes of breast cancer according to respondents were late initiation of breast feeding (150, 15.3%) or not practicing breast feeding (166, 16.9%). Late marriage being a risk factor was known only to 55(5.9%) respondents and relation of obesity with breast cancer was known to only 89(9.1%) subjects. The main preventive modality, breast self exam was known by only (324, 33%) subjects. Of those who knew about breast self examination correct methodology was known only to 1/4th of respondents (255, 25.9%). **Conclusions:** Women do have knowledge deficits about breast cancer and various factors related to it.

## INTRODUCTION

Recent global cancer statistics indicate rising incidence of breast cancer making it the commonest cancer not only in developed countries but in developing world too that hitherto enjoyed the low incidence of disease. Number of breast cancer cases is estimated to have reached 1.2 million worldwide. Globally every 3 minutes a woman is diagnosed with breast cancer amounting to 1 million annually (1). The incidence could go up by 50% i.e. 1.5 million by 2020 said world cancer report 2008. The report also points that breast cancer accounts for 16% of cancer deaths globally (2).

Incidence of breast cancer in India too is rising steeply and catching up with rates in western world at present. Breast cancer accounts for 19.34% of all cancer cases among women. The age standardized incidence rates here vary from 9- 28.6% per 100,000 women. A 2005 study conducted by the international association of cancer research, based in Lyon, France, projected that there would be 250,000 cases of breast cancer in India by 2015 a 3% increase per year currently (3). In the present scenario India reports roughly 100,000 new cases annually and 1 in 26 women are expected to be diagnosed with breast cancer in their life time (4).

Undoubtedly breast cancer will become an epidemic in India in another 10 years, if the current status of detection, diagnosis continues. As there is no exact etiological agent for breast cancer, early diagnosis and treatment is of paramount importance in improving the morbidity and mortality status. It has also been cited and validated in many studies that early detection reduces mortality by 30% (5,6).

Today more than 50% of cancer patients seek treatment in advanced stage and the onus is primarily shared by the inadequate awareness about breast cancer (7). But, when there is no established national screening program for breast cancer, it is pertinent to assess the knowledge about various modalities of early detection too. Of the various methods of detection for breast cancer, mammography is the method of choice in other side of globe but in developing world its use is limited (8), owing to high cost and its abysmal awareness in masses. Under these circumstances breast self examination (BSE) is an appropriate, convenient and cost effective method that can be done by every woman with little training. (9)

Various studies on breast cancer published from India reflect the disease profile and treatment. The breast cancer

awareness profile at community level is largely unrepresented. Hence, the present study was designed as an exploratory study to gather information pertaining to breast cancer and related variables, so as to plan future interventions in this field.

**MATERIALS AND METHOD**

The study was conceived in the field practice and the adjoining area of urban health training centre of the department of community medicine, Govt. medical college and Hospital, Chandigarh. The adjoining areas included periurban and slum areas. The total population of selected areas is about 51,000. This study was done from August 2007-Feb 2008.

**Study Design:** A Community based descriptive cross-sectional study.

**Participants:** Women, above 30 yrs of UT, Chandigarh.

**Sample size:** In the pilot survey done in the same area, the percentage of women aware of breast self examination was found to be 22%. So, taking this factor at 90% confidence interval and 10% permissible error, a sample size of 907 was calculated. Considering the refusal rate to be 15%, 1043 females were thought to be contacted to reach predetermined sample .Out of 1043, 29(2.8%) had no interest, 22(2.1%) no time, 11(1%) said no belief in such activities.

**Sampling Design:** Stratified multistage random sampling was used for selection of study subjects. First, by help of random number tables, the number of first house was selected. Numbers of households included in study were chosen according to proportional allocation of the each subgroup of population. Then, the women in every alternative household, above 30 yrs, were interviewed. If the house was locked or women were not there, then next house was chosen. If designated person could not be contacted or was not co-operative during two consecutive visits after the first then the subject was considered as non respondent. Hence in total 981 subjects were enrolled

**Instruments and Techniques:** For collecting information instrument so used was questionnaire was designed after discussing with experts of this field as well as with help of Toronto breast self examination Inventory (TBSEI) questionnaire (10) . The first part of it dealt with socio-demographic characteristics and second part of it solicited information pertaining to awareness of risk factors and preventive aspects related to breast cancer.

It was modified with necessary changes so felt after the pilot study. The data was gathered by a team of medical doctors, interns and medical social workers who were trained before enunciation of study. The women were interviewed after explaining them the purpose of study and taking their consent as per ethical guidelines of Helsinki. To encourage responses from them, the subjects were interviewed after establishing rapport and assuring them of confidentiality.

**Statistical Analysis:** Data was collected, compiled and analyzed. It was analysed using SPSS Version 10. Also statistical comparisons were examined for major variables in the study.

**RESULTS**

In total, 981 women of Chandigarh constituted the study population. The median age of respondents was 29.1 years. Majority of respondents were of age group <40 years (336, 34.3%) followed by those in menopause (370, 37.7%). Of total, 810 (82.6%) respondents were literate and majority were housewives (818, 83.4%). Married women were more (854, 87.1%) as compared to unmarried (59, 5.9%) (Table 1).

**Figure 1**

Table 1: Socio-demographic characteristics of women of Chandigarh

Variable	N=981
<b>Age</b>	
<40	336 (34.2%)
41-45	226(23.0%)
46-50	171(17.4%)
>50	248(25.3%)
<b>Education</b>	
Illiterate	171(17.4%)
Middle	170(17.3%)
Secondary	156(15.9%)
High School	152(15.5%)
Graduate	218(22.2%)
Post Graduate	114(11.6%)
<b>Occupation</b>	
House wife	818(83.3%)
Labourer	2(0.5%)
Govt. Service	80(8.1%)
Business	36(3.7%)
Others	42(4.3%)
<b>Menopause</b>	
Yes	370(37.7%)
No	611(62.3%)
<b>Marital Status</b>	
Married	854(87.1%)
Unmarried	58(5.9%)
Widow	69(7.3%)

On considering the various risk factors, (175, and 17.8%) had early age of menarche and (55, 5.9%) married at age more than 30 years were found to be at greater risk. Of all, 800 subjects had children. Maximum respondents had their first child in the age group of 26-30yr (314,32.8%) followed by those in age group 20-25 years (212,21.6%). Another important finding was that, (297, 30.2%) subjects had their first child at the age of>30 years and hence were more prone for breast cancer. When inquired about another risk factor, number of abortions (248, 25.3%) women did have abortions in the past. A high percentage of them had less than one in abortion whereas 28.2% had more than one. Of all the respondents (26, 2.7% had family history of breast cancer. Out of this, majority had their mothers (16, 61.5%) suffered of this followed by (6, 23%) their sisters as sufferers. Other respondents at risk were smokers (91, 10.2 %), users of oral pills (174, 17.7%) and not doing any type of physical exercise (291, 29.7%). A good percentage of subjects (833, 85%) gave no history of breast cancer and no history of breast mass (637, 64.9%).Another casual factor as trauma to breast was also negated by (971, 98.9%) females. (Table 2)

**Figure 2**

Table 2: Showing Prevalence of risk factors in subjects

Age at menarche	N=981
10-12	175(17.8%)
13-14	558(56.9%)
15-17	218(22.2%)
>17	30(3.1%)
Age at marriage	N=923
<20yrs	202(21.9%)
20-25yrs	389(42.1%)
26-30	277(30.1)
>30	55(5.9)
Age at First Delivery	N=800
<20yrs	158(16.1%)
20-25yrs	212(21.6%)
26-30yrs	314(32.8%)
>30yrs	297(30.2%)
History of abortion	
YES	248(25.3%)
No	674(68.7%)
Family history of breast cancer	
Yes	26(2.7%)
No	955(97.3%)
Breast cancer in	
Mother	16(61.5%)
Sister	6(23.1%)
Others	4(15.4%)
History of breast tenderness	
Yes	156(15.9%)
No	833(84.9%)
History of breast mass	
Yes	104(10.6%)
No	637(64.9%)
History of trauma to breast	
Yes	10(1.02%)
No	971(98.9%)
Smoking	
Yes	91(10.2%)
No	890(90.7%)
Alcohol	
Yes	53(5.4%)
No	928(94.6%)
Physical exercise	
None	291(29.7%)
Light	420(42.8%)
Moderate	268(27.3%)
Heavy	10(0.9%)
Oral Contraceptive use	
Yes	74(7.5%)
No	907

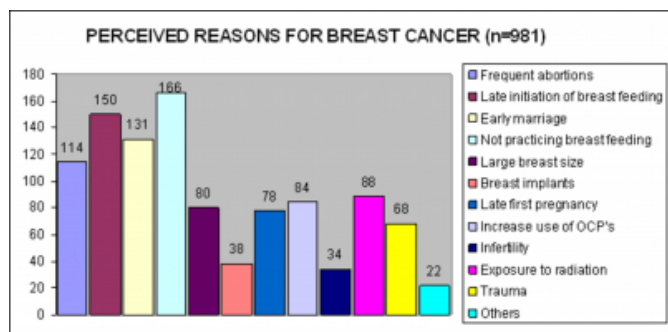
Respondents were probed for their level of knowledge about breast cancer. The variables included were awareness about common symptoms of breast cancer; different modalities of prevention, knowledge of breast self examination, etc.

All of the respondents had heard of breast cancer While inquiring about symptomatology, awareness about breast mass/lump to be cardinal symptom of breast cancer was high(47.2%,463).Other symptoms so answered were nipple discharge (282,28.7%),pain in breast(404,41.2%) and change in breast size(132,13.5%).Subjects were queried for various causal factors of breast cancer. The two main causes so responded were late initiation of Breast feeding (150, 15.3%) or not practicing breast feeding (166, 16.9%).Some subjects thought late marriage (55, 5.9%) and frequent abortions (114, 11.6%) are the causes for breast cancer. An equal proportion of females were of the opinion that excessive use of oral contraceptives(84,8.6%),large breast

size(80,8.2%),exposure to radiation(88,8.9%) and late first pregnancy(78,7.9%) are the other contributing causes of breast cancer. Few subjects had the view that infertility (34, 3.5%) and breast implants (38, 3.9%) can lead to breast cancer. (Figure 1)

**Figure 3**

Figure 1



Knowledge of factors that prevents the risk of cancer was not good in subjects. The main preventive modality, breast self exam was known by only (324, 33%) subjects. Breast feeding (241, 24.6%) and regular gynecological check ups (504, 51.7%) were other preventive methods so answered. Of those who knew about breast self examination correct methodology was known only to 1/4<sup>th</sup> of respondents (255, 25.9%). (Table 3).

**Figure 4**

Table 3: Showing Awareness & attitude towards Breast Cancer

<b>Heard of breast cancer</b>	
Yes	981(100%)
No	0(0%)
<b>Aware about symptoms of Breast Cancer</b>	
Breast mass	463(47.2%)
Pain in breast	404(41.2%)
Nipple discharge	282(28.7%)
Change in breast size	132(13.5%)
<b>Prevention of Breast Cancer</b>	
Regular gynecological checkups	504(51.4%)
<b>Breast feeding</b>	
BSE	241(24.6%)
BSE	324(33.02%)
<b>Clinical breast Examination</b>	
<b>Awareness of Diagnostic modalities</b>	
Mammography	268(27.3%)
X-ray breast	313(31.9%)
X-ray chest	226(23%)
Ultrasound breast	99(10.1%)
Others	76(7.7%)
<b>Knowledge about BSE</b>	
No knowledge	657(66.9%)
Correct	255(25.9%)
Incorrect	69(7.03%)
<b>Effect of Obesity on breast cancer</b>	
Yes	89(9.1%)
May be Yes	102(10.4%)
No	790(81%)
<b>Effect of Height on breast cancer</b>	
Yes	0
May be Yes	17(1.7%)
No	964(98.3%)

Management of breast cancer was estimated by asking them various hypothetical questions. Like on being asked which investigation they would undergo to diagnose breast cancer, (313, and 31.7%) told about X Ray breast, (226, 23%) for X Ray chest. Mammography option was answered by (268, 27.3%).Only few thought that USG breast and other modes like urine examination, blood tests, etc. (76, 7.7%) are the methods for investigation. When considering other variables it was found that none of the respondents were aware of relation of height with breast cancer whereas relation of obesity with breast cancer was known to 89(9.1%) subjects. (Table 3)

**DISCUSSION**

The findings of this study depicted a wide gap in knowledge about breast cancer and its risk factors among women of Chandigarh. Though all of the women had heard about breast cancer but only half of them were aware of the cardinal symptoms of breast cancer. These findings were

consistent to that of study done in Korean women (11,12) This indicates that in spite of massive efforts done globally and nationally ,for awareness of breast cancer knowledge has not reached at the community level. And the onus for this lies on the inadequate or inefficient IEC activities.

Now due to globalization and adoption of western life styles, Indian Women are marrying late, not having first child birth at an early age and also not breast feeding till long. These are the risk determinants of breast cancer as evident in many studies (7,13) . Risk factors of breast cancer are manifold. There is difference between risk determinants and risk modulators whereas determinants can not be influenced, risk factor modulator can be. On assessing the risk determinants it was found that 1/3<sup>rd</sup> of women had delivered at age more than 30 years and 1/5<sup>th</sup> of subjects had early age of menarche. These findings concurred with that of other studies. (14,15)

A great deal of research has validated the association of another risk factor abortion with breast cancer. It has been shown that first-trimester abortion before full term pregnancy, whether spontaneous or induced, is associated with a 2.4-fold increase in breast-cancer risk (16) .. The findings in this study showed that more than 1/5<sup>th</sup> had one abortion These findings were on similar pattern to that of done by Somerville (17)

Another major risk determinant, family history of breast cancer increases the risk as follows: if a woman has a mother who has suffered from breast cancer her risk increases about 3 fold while having a sister with cancer, the risk increases by about 2-3 fold (18,19) . In this study 3% of the respondents had positive family history and more than half of them were at high risk as their mothers had suffered of breast cancer.. The findings were in contrast to that of study done in Africa women Germany where 1/4<sup>th</sup> of subjects had family history of breast cancer (20) Research on women at risk for breast cancer owing to family history suggests that a substantial proportion need education to assist them in their efforts to understand their risk of breast cancer

A great deal of research shows that number of years indulged in smoking is proportionate to the risk of developing breast cancer. It has been proven that for women who had smoked for 40 years or longer, the risk of breast cancer is 60% higher than that of women who had never smoked (21) . Among those who smoked 20 cigarettes or more a day for 40 years, the increased risk rose to 83%. “Though smoking of very long duration and high intensity

may be associated with increased risk of breast cancer, but association with second hand smoke is controversial (22) . The number of subjects who were smokers accounted to 1/5<sup>th</sup> of total sample. They were either smoking or using smokeless tobacco products. The researchers have also found that, smoking intensity, smoking duration, years since smoking started, and pack years of cigarette consumption had positive associations with breast cancer risk. But age at which smoking began and years since quitting among former smokers were not clearly associated with risk (23,24) .

Subjects when inquired about different causes of breast cancer enumerated various perceived causes. It was interesting to find that some subjects could co-relate breast feeding with breast cancer (25) . Late initiation of breast feeding and not practicing breast feeding were another strong predictors so mentioned. Other factors responsible for breast cancer according to them were increased use of OCPs, late first pregnancy and early marriage. Also, many were of opinion that exposure to radiation is harmful. It has been validated in many researches that exposure to radiation is a predisposing cause for breast cancer (26) and especially if breast was in development stage at that time then proneness to breast cancer is increased.

In India mortality due to breast cancer is high with incidence/mortality ratio of 0.48. Main contributing factors for increased mortality is late diagnosis and the cause is basically attributed to lack of access to medical facilities virtually non existent breast cancer screening programs and lack of awareness detecting techniques (27,28) . The ignorance about how to go for investigation on a suspicion of a case of breast cancer was pretty evident by the fact that 1/3<sup>rd</sup> of them thought that X-ray breast is the way to diagnose it. Though the question were asked in a very simple, easy to understand terminologies but then too more than 1/5<sup>th</sup> of them thought, X-ray chest to be the investigative tool. Low response was elicited for mammography and USG breast, cause was of course lack of awareness.

In developing countries owing to recourse crunch and diagnostic facilities being too costly, BSE is an effective and economic preventive mode. Hence, early detection and screening by self examination has to generated and promoted. Many studies have corroborated to the above findings that poor information about risk factors lead to low prevalence of self examination among participants. Almost 1/3<sup>rd</sup> of participants were knowledgeable about BSE. On asking them about how to elicit it, only 1/5<sup>th</sup> were aware of

correct methodology. The result of this concurs with that of study done in Shanghai (29) where only 16% claimed to be familiar with BSE. On the contrary, studies done in developed countries, highlighted more emphasis being done on the other diagnostic tools as compared to BSE (30,31)

Lot of studies have shown the correlation of various cancers with obesity and lack of physical activity (32,33,34). Indian population too are now suffering of obesity, central adiposity and increase in waist hip ratio as a result of urbanization, Almost 1/3<sup>rd</sup> of respondents knew that weight is related to development of breast cancer. But none of the participants were aware that height is a determining factor in the risk of developing breast cancer. Results of many cohort studies has reinforced the link between weight and height with breast cancer (35,36,37). Reviewing the correlation of weight and breast cancer in many studies, researches have found that weight is protective before menopause but detrimental after that.

**Conclusions:** Despite numerous breast cancer early detection campaigns being organized locally and a lot of activities done nationally by Government, women still displayed knowledge deficits. Our study highlights the need for awareness and wide scale cancer screening activities in consistence with local beliefs. Also, educational efforts should be designed specifically to influence variables related to compliance with early breast cancer detection behaviors.

Along with this cancer prevention program should emphasize the provision of factual information about cancer and cancer screening behaviours in the context of an exploration of inaccurate beliefs about cancer that may inhibit health behaviors. It was felt that women cancer screening practices must be reinforced and also women must be educated to practice recommended age appropriate breast cancer screening.

**Limitations:** The literacy rate in Chandigarh is 81.6%, far better than literacy rate in majority of other cities of North India, so women here may be more educated and the results cannot be generalized for rest of north India.

### CORRESPONDENCE TO

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