

**BREAST CANCER AWARENESS AND PERCEPTIONS OF WOMEN REGARDING
RISK FACTORS IN UNDER-PRIVILEGED URBAN COMMUNITY OF CHANDIGARH,
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ABSTRACT

Context: Breast cancer is the most commonly detected malignancy among women worldwide which has emerged as the leading cause of cancer-related mortality. There is an urgent need to assess the current levels of perception and awareness about breast cancer among women in relation to their socio-demographic factors, particularly in under-privileged urban community. **Aims and Objectives:** Present study aims to assess patterns regarding breast cancer symptoms, risk factors, and sources of information among women, and to analyze how socio-demographic variables such as age, socio-economic status (SES), and age at marriage influence these aspects. **Material and Methods:** A cross sectional survey conducted among 204 women aged above 18 years of age in under-privileged urban community of Chandigarh, India. Convenient sampling was used and selected women were interviewed in privacy to collect information using semi structured interviews. Data variables included socio-demographic characteristics, perceptions and awareness of breast cancer and its risk factors, source of awareness. Mixed method analysis was adopted for data analysis Content analysis of qualitative responses was carried out. **Results:** The majority of women belonged to the age group of 19–25 years, accounting for 116 participants (56.9%). A total of 104 women (51.0%) perceived breast cancer as curable at an early stage. the most commonly identified symptom was breast pain, reported by 78 women (38.2%), followed by general awareness of breast cancer in 52 (25.5%). Swelling in the breast area was identified by 48 women (23.5%) and nipple discharge by 40 (19.6%). Nipple tenderness was mentioned by 34 (16.7%) respondents. Hereditary or family history and long menstrual cycles were each mentioned by 84 women (41.2%) each. Overall, 134 women (65.7%) were aware of at least one risk factor. Awareness was highest among women aged 36–49 and 50–59 years. Age and socioeconomic status were found significant correlates of awareness irrespective of age at marriage. **Conclusion & Suggestion:** Study findings indicated lack of awareness of breast cancer among women and several misconceptions regarding breast cancer and risk factors perceived by women. It is concluded that increasing awareness of symptoms and risk factors of breast cancer at early ages irrespective of their social characteristics is very crucial. Incorporating comprehensive health education at community level is essential to dispel these misconceptions, support prevention, and improve treatment outcomes in a more holistic way.

KEYWORDS: Breast cancer; Awareness; Perceptions and beliefs; Risk factors; Symptoms.**INTRODUCTION**

Cancer remains one of the leading causes of death globally, despite advancements in diagnosis and treatment, and continues to pose a significant public health challenge. The World Cancer Report by the International Agency for Research on Cancer (IARC) highlights a global rise in cancer rates at an alarming

pace. India faces a dual burden of communicable and non-communicable diseases, with cancer emerging as a significant concern due to high exposure to risk factors like tobacco, alcohol, poor diet, infections, and workplace carcinogens. Limited healthcare resources and widespread poverty worsen the situation.

Breast cancer is the most commonly detected malignancy among women worldwide which has emerged as the leading cause of cancer-related mortality. In 2018 alone, over 2 million new cases of Breast cancer were reported, with a mortality rate of 626.7 per 10 0,000 population.^[2] According to the Global Cancer Observatory (GLOBOCAN) 2020 data, breast cancer has surpassed lung cancer as the most frequently occurring cancer, with an estimated 2.3 million new cases and 685,000 deaths worldwide.^[1] In India, breast cancer constitutes about 14% of all cancers among women, with its prevalence growing in both urban and rural populations.^[3] The increasing burden is largely attributed to lifestyle transitions, reproductive factors, environmental exposures, and increased longevity, particularly in low- and middle-income countries (LMICs).

In a study, perceptions and beliefs and awareness of risk factors of cancer were explored using interviews of 1,117 newly diagnosed cancer patients (44.9% males and 55.1% females) were explored. The most common cancer types reported were breast cancer (18.3%), head and neck cancer (10.2%), and cervical cancer (9.1%). The study reported several misconceptions regarding cancer and risk factors perceived by cancer patients. It was concluded that increasing awareness of symptoms and risk factors of cancers is very important, and it should be introduced in medical practice for effectively addressing the issues related with care of cancer patients.^[4]

Health education promoting breast health awareness and early detection can help reduce its incidence. Early detection and treatment significantly enhance survival rates; however, awareness regarding breast cancer symptoms, risk factors, and screening modalities remains inadequate, especially among socioeconomically disadvantaged groups.^[5] Misconceptions, stigma, and reliance on non-medical therapies continue to delay timely diagnosis and care. Despite the rise in health communication through media and public health initiatives, knowledge depth remains poor, especially concerning early signs and causative factors.^[6]

Socio-demographic determinants such as age, education, marital status, and socioeconomic background substantially influence awareness and perception of breast cancer. Young women may underestimate their risk, whereas older women may normalize symptoms. Women of lower SES suffer lack of access to health care and awareness.^[7] Sources of breast cancer information commonly include mass media, family, and peers. While media campaigns have extended reach, interpersonal discussions may exert more behavioral influence. Health care providers remain underutilized due to insufficient community outreach and systemic limitations.^[8]

In India, programs like the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) have

sought to improve public awareness and early screening. However, community-level studies reveal disconnect between knowledge and practice. In spite of breast cancer awareness as an identify, specific symptoms such as nipple discharge or breast lump, and biological or lifestyle-related risk factors are relatively less recognized.^[9] Awareness of breast cancer is increasing globally due to mass media campaigns, healthcare initiatives, and educational programs, the depth of knowledge regarding risk factors and early warning signs remains inadequate. Perception about breast cancer often influences health-seeking behavior, preventive practices, and adherence to treatment. Misconceptions, cultural beliefs, fear of stigma, and reliance on alternative therapies often delay diagnosis, contributing to a significant number of women presenting with advanced stages of the disease. This context underscores the need to assess the current levels of perception and awareness about breast cancer among women in relation to their socio-demographic factors, particularly in under-privileged urban community. Such understanding is pivotal for designing culturally appropriate, targeted educational interventions and policy frameworks aimed at improving early detection and reducing the burden of breast cancer morbidity and mortality in the Indian context.

Present study aims to assess patterns regarding breast cancer symptoms, risk factors, and sources of information among women, and to analyze how socio-demographic variables such as age, socio-economic status (SES), and age at marriage influence these aspects.

MATERIAL AND METHODS

A cross sectional survey was conducted during July and August 2024 before health education campaigns planned to create awareness among women aged above 18 years of age in under-privileged urban community of Chandigarh, India. Chandigarh is a highly urbanized city and also capital of two states: Haryana and Punjab. Chandigarh, a modern city called city beautiful of India is the most economically advanced UT of India which is characterized by high population growth due to migratory population and rapidly changing life style. Here the pattern of cancer may vary considerably as compared to remaining part of India. A convenient sampling was used and selected women were interviewed in privacy to collect information using semi structured interview schedules by trained health education team members. Confidentiality of their responses was ensured addressing ethical concerns.

Data variables included socio-demographic characteristics, perceptions and awareness of breast cancer and its risk factors, source of awareness. Mixed method analysis was adopted for data analysis Content analysis of qualitative responses was carried out. Chi square test was used for testing the significance of association between risk factor and socio-demographic

characteristics of women. Data analysis was carried out using IBM SPSS -26.0 software.

RESULTS

There were 204 women aged 18-59 years included in the study. Table 1 shows the socio-demographic characteristics of the respondents. The majority of women belonged to the age group of 19–25 years, accounting for 116 participants (56.9%), followed by 58 women (28.4%) aged 26–35 years. A total of 24 participants (11.8%) were below 18 years of age, 4 (2.0%) were between 36–49 years, and only 2 (1.0%) were in the 50–59 years age group.

Regarding age at marriage, most women were married between 18–25 years, comprising 154 participants (75.5%), while 28 (13.7%) were married before 18 years of age and 22 (10.8%) got married between 25–29 years. Socioeconomic status (SES) distribution showed that 106 women (52.0%) were from low SES, 84 (41.2%) belonged to the middle SES group, and only 14 (6.9%) were from high SES backgrounds.

Table 2 highlights the perceptions and awareness patterns regarding breast cancer. A total of 104 women (51.0%) perceived breast cancer as curable at an early stage. However, 12 (5.9%) believed it is the last stage of life, 10 (4.9%) thought it is not curable, and 4 (2.0%) considered it as a displeasure of God. Additionally, 18 participants (8.8%) felt that treatment must be completed, and 4 (2.0%) favored alternative therapies. In terms of symptom awareness, the most commonly identified symptom was breast pain, reported by 78 women (38.2%), followed by general awareness of breast cancer in 52 (25.5%). Swelling in the breast area was identified by 48 women (23.5%) and nipple discharge by 40 (19.6%). Nipple tenderness was mentioned by 34 (16.7%) respondents, while 32 (15.7%) were aware of changes in nipple size. Other symptoms reported included change in shape of the breast by 28 (13.7%), change in symmetry by 22 (10.8%), and skin changes also by 22 (10.8%). Thickening of the breast and breast infections were identified by 4 (2.0%) and 16 (7.8%) women respectively.

Regarding awareness of risk factors, hereditary or family history and long menstrual cycles were each mentioned by 84 women (41.2%) each. Being overweight was reported by 74 (36.3%), and lack of physical activity by 48 (23.6%). Smoking and alcohol were identified by 40 participants (19.6%) and age by 24 (11.8%). Other risk factors reported included genetic changes by 18 (8.8%), exposure to radiation by 16 (7.8%), breast density and low-level radiation by 10 each (4.9%), and early menarche or late menopause by 6 (2.9%).

Sources of awareness were mainly mass media, as reported by 70 women (34.3%), followed closely by family members or relatives in 68 cases (33.3%), and friends in 58 (28.4%). Other sources were reported by 18 women (8.8%).

Table 3 presents the association between socio-demographic characteristics and awareness of breast cancer risk factors. Overall, 134 women (65.7%) were aware of at least one risk factor. Awareness was highest among women aged 36–49 and 50–59 years, where all 4 and 2 participants respectively (100.0%) were aware. In the 26–35 years group, 50 out of 58 women (86.2%) were aware, while awareness among the 19–25 years group was seen in 64 out of 116 (55.2%), and among those below 18 years in 14 out of 24 (58.3%). The association between age and awareness was statistically significant ($P = 0.03$).

With respect to age at marriage, awareness was reported by 16 out of 22 women (72.7%) married between 25–29 years, 106 out of 154 (68.8%) married between 18–25 years, and 12 out of 28 (42.9%) married below 18 years. The association was not statistically significant ($P = 0.14$).

Socioeconomic status was significantly associated with awareness ($P < 0.001$). All 14 women (100.0%) in the high SES group were aware of risk factors, followed by 68 out of 84 (81.0%) in the middle SES group and 52 out of 106 (49.1%) in the low SES group.

Table-1: Women by socio-demographic characteristics.

Socio-demographic characteristics	Number (N=204)	%
Age		
Below 18	24	11.8
19-25	116	56.9
26-35	58	28.4
36-49	4	2.0
50-59	2	1.0
Age at marriage		
Below 18	28	13.7
18-25	154	75.5
25-29	22	10.8
SES		
Low	106	52.0

Middle	84	41.2
High	14	6.9
Total	204	100.0

Table-2: Perceptions and awareness pattern of respondents regarding symptoms of breast cancer.

Perception regarding breast cancer	Number (N=204)	%
Curable at early stage	104	51.0
Not curable	10	4.9
Last stage of life	12	5.9
Displeasure of God	4	2.0
Treatment must be completed	18	8.8
Alternative therapies should be attempted	4	2.0
Awareness of symptoms and risk factor of breast cancer		
Breast cancer	52	25.5
Change in nipple size	32	15.7
Breast pain	78	38.2
Change in symmetry of breasts	22	10.8
Change in skin	22	10.8
Nipple tenderness	34	16.7
Thickening of the breast	4	2.0
Change in shape of the breast	28	13.7
Nipple discharge	40	19.6
Swelling in the breast part	48	23.5
Breast infections.	16	7.8
Any other		
Risk factor		
Age	24	11.8
Hereditary/Family history	84	41.2
Long menstrual cycle	84	41.2
Early menarche and late menopause	6	2.9
Exposure to low level radiation	10	4.9
Genetical changes	18	8.8
Lack of physical activity	48	23.6
Being Overweight	74	36.3
Smoking/Alcohol	40	19.6
Breast Density	10	4.9
Radiation exposure	16	7.8
Any other	6	2.9
Source of awareness		
Mass media	70	34.3
Family members/relatives	68	33.3
Friends	58	28.4
Others	18	8.8

Table-3: Socio-demographic characteristics of women in association with awareness of risk factors of breast cancer.

Risk Factor	Overall	Awareness	
		Number	%
Age			
Below 18	24	14	58.3
19-25	116	64	55.2
26-35	58	50	86.2
36-49	4	4	100.0
50-59	2	2	100.0
			P=0.03
Age at marriage			
Below 18	28	12	42.9
18-25	154	10	68.8
25-29	22	16	72.7
			P=0.14
SES			
Low	106	52	49.1
Middle	84	68	81.0
High	14	14	100.0
			P<0.001
Total	204	134	65.7

DISCUSSION

Cancer is a leading cause of death globally despite advancements in diagnosis and treatment, and continues to pose a significant public health challenge, especially in developing countries like India. Breast cancer remains the most commonly diagnosed cancer and the leading cause of cancer-related deaths among women globally. Present study represented women aged 18-59 years representing varied socio-demographic characteristics and they were interviewed for their perceptions and awareness patterns regarding breast cancer. Only 51.0% surveyed women perceived breast cancer as curable at an early stage. However, 5.9% women believed it is the last stage of life, and only 8.8% felt that treatment must be completed. Only 2.0% respondents considered it as displeasure of God. Our earlier study among cancer patients attending a tertiary health care facility had reported 43.1% cancer patients believed cancer was curable, 32.0% felt it was curable at an early stage and 15% attributed it to divine displeasure.^[4]

The present study reported lack of awareness of major symptoms and risk factors of breast cancer and highlighted several misconceptions regarding the disease. In the present study, breast pain came out to be to be the most common identified symptom reported by 38.2% women. Other symptoms were known to lesser proportion of women. Swelling in the breast area and nipple discharge was reported by 23.5% and 19.6% women. Nipple tenderness was mentioned by 16.7% respondents, while 15.7% were aware of changes in nipple size. Changes in shape and symmetry of the breast by were known to only 13.7% and change 10.8% women respectively. Health staff was not the major source of awareness. Sources of awareness were mainly mass media reported by 34.3%, followed close family

members or relatives in 33.3% cases. Age and socioeconomic status were found significant correlates of awareness irrespective of age at marriage. Awareness was more among women of higher ages and among those belonging to middle or high SES. These findings are partially in agreement with findings of our earlier study which demonstrated awareness of breast cancer symptoms, with 28% identifying breast pain, 18.6% swelling, 13.7% change in breast shape, and smaller percentages recognizing other symptoms like nipple discharge (11.0%), skin changes (8.4%), and nipple changes (8.3%). Frequently perceived symptoms included weakness and fatigue (65.3%), loss of appetite (50.9%), and difficulty swallowing (30.5%).^[4]

Regarding awareness of risk factors, hereditary or family history came out to be the most common risk factor mentioned by 41.2% and being overweight reported by 36.3% followed by lack of physical activity by 23.6% and smoking and alcohol were reported by 19.6% participants. Other risk factors reported included genetic changes reported by 8.8%, exposure to radiation (7.8%), breast density and low-level radiation (4.9%), and early menarche or late menopause by (2.9%). Perceived risk factors in our previous study included genetic changes (3.7%), smoking/alcohol use (3.1%), long menstrual cycles (2.2%), increasing age (2.1%), overweight (1.3%), high breast density (1.2%), lack of physical activity (0.7%), and reproductive factors such as early menarche and late menopause (0.4% each).^[4]

Sources of awareness reported in the present study were mainly mass media, as reported by 34.3%, followed close family members or relatives in 33.3%, and friends 28.4% cases. Other sources including health staff were reported by 8.8% women only. Whereas, previous study

reported main sources of cancer knowledge as mass media (53.2%) and friends (35.0%). A study conducted among female university students reported 80.2% students had prior information about breast cancer mainly from university studies, the internet, and social media. Their knowledge of symptoms and risk factors was good but with limited understanding of early detection, treatment, and breast self-examination (BSE) steps.^[10]

The study highlighted misconceptions among women regarding breast cancer and its risk factors. Age and socioeconomic status were found significant correlates of awareness irrespective of age at marriage. Awareness was more among women of higher ages and among those belonging to middle or high SES. It emphasizes the critical need to enhance awareness about cancer symptoms and risk factors, integrating this knowledge to improve patient care. This is particularly relevant in the context of increasing incidence of breast cancer and the pressing need for community-centered, evidence-based awareness strategies in public health practice.

Present study focused solely on women of particular geographical area during our health education campaign. Findings of the present study may not be generalizable to the wider population. Moreover, this study is silent on awareness and practice of breast self examination (BSE), which is the main limitation of the study. The study also failed to comment on effectiveness of health education interventions and causal relationship between awareness and extent of disease reduction can't be established based on present findings. Further in depth interventional studies may be subject matter of future studies to address these shortcomings.

Conclusions and Suggestions

Study findings indicated lack of awareness of breast cancer among women and several misconceptions regarding breast cancer and risk factors perceived by women. It is concluded that increasing awareness of symptoms and risk factors of breast cancer at early ages irrespective of their social characteristics is very crucial. The study reemphasized the need for targeted educational programs to improve awareness of breast cancer among women. Incorporating comprehensive health education at community level is essential to dispel these misconceptions, support prevention, and improve treatment outcomes in a more holistic way. Health education promoting breast health awareness and early detection can help reduce negative perceptions regarding breast cancer and its symptoms and risk factors resulting in hesitation in seeking early treatment. Further in-depth research should be conducted for better understanding opinions of women to validate these findings in general community.

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