BREAST CANCER AWARENESS: ITS IMPACT ON RURAL PHARMACY STUDENTS IN NORTHERN MAHARASHTRA

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ABSTRACT

Introduction: Breast cancer is a serious disease that affects 1 in every 4 women worldwide and is the second leading cause of death among women. Symptoms include changes in breast shape, the formation of lumps in the breast, nipple discharge or fluid secretion, inverted nipples, skin dimpling, and red or scaly patches on the skin. There are over 18 subtypes of breast cancer, and treatments such as chemotherapy, hormonal therapy, radiation therapy, surgery, and targeted therapy have proven effective. To prevent the progression of the disease and mitigate risks in those who are not yet affected, it is essential to have a thorough understanding of the risk factors, signs, and symptoms of breast cancer. **Materials and Methods:** A practical sampling strategy was employed to create a questionnaire, which was administered to participants both before and after the awareness camp. The questionnaire included several items related to breast cancer, its symptoms, indicators, and various screening techniques. Microsoft Excel was utilized for statistical analysis of the collected data. **Results and Discussion:** A total of 270 pharmacy students participated in the study, with a gender distribution of 52.59% female and 47.41% male. The findings indicate that teachers (33%) play a crucial role in enhancing students' knowledge and awareness of breast cancer, alongside awareness campaigns (15%) and the internet (35%). **Conclusion:** Addressing ignorance about breast cancer is essential, and this can be achieved through awareness programs, community activities, expert lectures, and discussions led by specialists.

KEYWORDS: Breast cancer, Pharmacy student, Awareness program, Education Impact, North Maharashtra, Rural.

INTRODUCTION

Breast cancer is a disease that affects millions of people worldwide, striking fear into the hearts of many. It is one of the most common forms of cancer, with an alarming prevalence that underscores its severity. In fact, breast cancer accounts for approximately one in every four new cancer cases, making it the second leading cause of cancer-related deaths among women globally. This statistic highlights the profound impact that breast cancer has on public health, particularly among women, who are most commonly affected by this condition.[1] The symptoms of breast cancer are varied and recognizing them early is crucial for effective treatment. Changes in the contour or shape of the breast are often one of the first signs noticed by individuals. This might include a visible or palpable lump in the breast, which is typically one of the most alarming symptoms for those who discover it. Other symptoms include nipple discharge or fluid production, which may occur without any obvious cause. Additionally, an inverted nipple, where the nipple turns inward rather than pointing outward, can be another indicator of breast cancer. The skin covering the breast might also show signs of dimpling, resembling the texture of an orange peel, or develop patches of red or scaly skin. These symptoms often indicate that the cancer has begun to affect the tissues within the breast, manifesting externally in these various forms.[01-03] Breast cancer begins in the breast tissues, specifically within the cells lining the milk ducts or lobules, and can present with the aforementioned symptoms. As the disease

progresses, it can spread beyond the breast, leading to more severe and systemic symptoms. The spread of cancer to other parts of the body, known as metastasis, can result in symptoms such as shortness of breath, which may indicate that the cancer has spread to the lungs. Swelling of the lymph nodes, particularly in the underarm area, can be a sign that the cancer is affecting the lymphatic system. Bone pain is another serious symptom, suggesting that the cancer has metastasized to the bones. Additionally, yellowing of the skin, or jaundice, can occur if the cancer spreads to the liver. These symptoms mark a more advanced stage of the disease and often signal a more challenging prognosis.[01,04] There are approximately 18 unique subtypes of breast cancer, each distinguished by specific characteristics. These subtypes are classified based on factors such as the molecular makeup of the cancer cells, the presence or absence of certain receptors on the cells, and the rate at which the cancer is likely to grow and spread. Some of the more common subtypes include hormone receptor-positive breast cancer, HER2-positive breast cancer, and triple-negative breast cancer, each requiring different treatment approaches. The diversity among breast cancer subtypes highlights the complexity of the disease and the necessity for personalized treatment plans tailored to the specific characteristics of each patient's cancer.[01,02,04] The treatment of breast cancer has evolved significantly over the years, with multiple therapeutic options available that have proven to be beneficial. Chemotherapy, for example, involves the use of drugs to destroy rapidly dividing cancer cells throughout the body. Hormone therapy is another option, particularly for cancers that are hormone receptor-positive, as it works by blocking the body's natural hormones from fuelling the growth of cancer cells. Radiation therapy, which uses high-energy rays to target and kill cancer cells, is often used after surgery to eliminate any remaining cancerous cells in the breast or surrounding areas. Surgical treatments can range from lumpectomy, where only the tumour and a small margin of surrounding tissue are removed, to mastectomy, where the entire breast is removed. In some cases, targeted therapy is used, which involves drugs that specifically target the cancer cells' unique characteristics, such as the HER2 protein in HER2-positive breast cancer. These treatments can be used individually or in combination, depending on the stage and subtype of breast cancer, as well as the overall health and preferences of the patient.[01-03] In a previous publication titled "Assessment of perception about breast cancer in randomly selected pharmacy students of rural area of north Maharashtra," the causes, warning signs, and symptoms of breast cancer were discussed in detail. This study aimed to raise awareness about the disease among young pharmacy students, many of whom may go on to become healthcare providers. By educating this demographic, the hope is that they will be better equipped to recognize the signs of breast cancer in their future patients and advocate for early detection and prevention strategies. Building on the information presented in that study, it is essential to further explore the diagnostic criteria and prevention methods that can play a pivotal role in combating breast cancer.[01] Diagnostic criteria for breast cancer are critical for early detection, which is key to improving survival rates. A physical examination of the breasts, either by a healthcare provider or even a female relative, can be the first step in identifying potential issues. Mammography, which is an X-ray of the breast, is one of the most effective screening tools available and can detect tumours that are too small to be felt. In cases where a suspicious area is identified, a biopsy may be performed, where a small sample of tissue is taken from the affected area and examined under a microscope to determine if cancer cells are present. The combination of self-examination and professional medical examination has been shown to significantly aid in the early detection of breast cancer. Early detection not only increases the chances of successful treatment but also reduces the likelihood of the cancer spreading to other parts of the body.[01,04] Prevention of breast cancer involves several lifestyle modifications that can reduce an individual's risk of developing the disease. Breastfeeding, for example, has been shown to lower the risk of breast cancer, particularly in women who breastfeed for extended periods. A diet rich in vegetables, fruits (especially citrus fruits), and whole grains is also beneficial, as these foods contain nutrients and antioxidants that can help protect against cancer. Regular physical activity is crucial, as it helps to maintain a healthy body weight and reduces the levels of hormones that can fuel cancer growth. Maintaining a healthy body mass index (BMI) is another important factor, as obesity is a known risk factor for breast cancer, particularly in postmenopausal women. By adopting these lifestyle changes, individuals can take proactive steps to lower their risk of developing breast cancer, contributing to overall better health and well-being.[01,07-09] Breast cancer is a significant global health issue, with a wide range of symptoms, subtypes, and treatment options. Early detection through regular screening and self-examination, along with lifestyle modifications, can play a crucial role in preventing and managing this disease. Education and awareness are key components in the fight against breast cancer, as they empower individuals to take charge of their health and seek medical attention at the earliest signs of trouble. Through continued research, public health initiatives, and advances in medical treatment, there is hope that the impact of breast cancer can be significantly reduced, leading to better outcomes for those affected by this challenging disease.[01,10]

MATERIALS AND METHODS
A questionnaire in the style of a Google form was produced in advance of taking the awareness programmes, and participants were asked to fill it out. The methodology of sampling based on convenience was chosen for the investigation. To figure out respondents' levels of awareness on breast cancer, this test included inquiries about a variety of early detection strategies and breast cancer warning indicators. The months of January

and February 2023 were used to carry out this investigation. The spreadsheet program Microsoft Excel was used for all the data administration and statistical analysis. After that, careful examination of the data and a specific element in which the respondents' answers are inaccurate led to the decision to place emphasis on that. Altogether, a lecture series, a video sharing program, and an awareness program were carried out for unisexual students. Following that, similar demonstrations of self-physical examination during the lectures were carried out individually for the girls and the males. Once more, once the participants had finished the awareness program, the identical questionnaire in the form of a Google form was sent to them to fill out.

RESULTS AND DISCUSSION

The study involved a total of 270 pharmacy students who participated in a breast cancer awareness event. Among the participants, the gender distribution was nearly balanced, with 47.41% being males and 52.59% being females. This indicates a slight female majority in the population studied. The demographic details of these participants are meticulously detailed in **Table No. 01**, which provides a comprehensive overview of the population characteristics. Prior to the initiation of the breast cancer awareness programs, a significant gap in knowledge was observed among the participants. Specifically, 61% of the female participants and a notably higher 81% of the male participants were not aware of breast cancer. This highlights a critical need for awareness initiatives among young adults, particularly in professional courses like pharmacy, where such

knowledge could be crucial for future healthcare providers. The awareness programs, therefore, played a pivotal role in bridging this knowledge gap, providing students with the opportunity to enhance their understanding and awareness of breast cancer. The influence of teachers, awareness programs, and the internet was found to be substantial in contributing to this increased awareness. Specifically, 33% of the students cited their teachers as a significant source of information, while 15% credited the awareness programs directly, and 35% acknowledged the internet as a key resource for information. This distribution of influence underscores the multifaceted approach required to effectively disseminate information on health issues such as breast cancer. It also suggests that while structured programs and formal education play a crucial role, the accessibility and reach of the internet cannot be overlooked in modern awareness campaigns. A notable observation from the study is the significant difference in participants' responses before and after the awareness programs were conducted. This differentiation underscores the effectiveness of the awareness initiatives in enhancing knowledge and possibly changing perceptions regarding breast cancer. When examining the demographic and socioeconomic data of the participants, it is evident that a majority of the participants are young individuals at the start of their professional lives, with 56.30% being in this category. Also, 42.96% of the participants are aged between 20 and 22 years, indicating that the study predominantly involved a young adult population.

Table No. 01 – Demography and Socio-economic factor (gender wise)

Particulars		Female		Male		Total	
		Number	%	Number	%	Number	%
Age in Years	16– 19	82	30.37	70	25.93	152	56.30
	20– 22	58	21.48	58	21.48	116	42.96
	Other	2	0.74	0	0.00	2	0.74
Type of Family	Nuclear	80	29.63	24	8.89	104	38.52
	Joint	52	19.26	42	15.56	94	34.81
	Extended	8	2.96	12	4.44	20	7.41
	Other	0	0.00	2	0.74	2	0.74
Current Location (Residence)	Urban	18	6.67	34	12.59	52	19.26
	Rural	112	41.48	88	32.59	200	74.07
	Metro city	4	1.48	4	1.48	8	2.96
	Other	6	2.22	2	0.74	8	2.96
Socio economic factor (Family gross income)	20 K - 50 K	66	24.44	88	32.59	154	57.04
	51 K - 70 K	24	8.89	14	5.19	38	14.07
	71 K - 100 K	8	2.96	2	0.74	10	3.70
	> 01 Lakh	38	14.07	22	8.15	60	22.22
	> 05 Lakh	4	1.48	10	3.70	14	5.19
	> 10 Lakh	0	0.00	0	0.00	0	0.00
Body Mass Index	Underweight	28	10.37	22	8.15	50	18.52
	Normal	106	39.26	98	36.30	204	75.56
	Overweight	2	0.74	8	2.96	10	3.70
	Obese	2	0.74	2	0.74	4	1.48
	Don't know	2	0.74	0	0.00	2	0.74

Interestingly, the data also reveals that there is no significant correlation between family type and the awareness patterns observed among the participants. This is evident from the fact that 38.52% of the participants come from nuclear families, while 34.81% come from joint families. Despite these differences in family structure, the awareness levels did not show any significant variation, suggesting that family type may not be a critical factor in breast cancer awareness among young adults. The effectiveness of the awareness programs is further illustrated by the results of breast cancer response tests, which were conducted before and after the campaigns. These results are visually presented in Figure No. 1. Additionally, Figure No. 02 depicts the risk factors for developing breast cancer, both before and after participation in the awareness programs. These visual representations provide a clear and concise view of the impact that the awareness programs had on the participants' understanding of breast cancer and its associated risk factors. In analysing the data, the socioeconomic background of the participants was considered, particularly when interpreting any potential associations between body mass index (BMI) and other health status factors. This consideration is crucial, as it allows for a more nuanced understanding of how various factors, including socioeconomic status, might influence health outcomes and awareness levels. The participants were asked to fill out a questionnaire, administered via an online Google form, both before and after attending the breast cancer awareness session. The questions in this questionnaire were designed to assess the success of the training, and the responses provided valuable insights into the participants' knowledge and awareness levels. One of the key findings from the study is the significant impact of the participants' geographical location on their level of breast cancer awareness. Notably, 74.07% of the participants hailed from rural backgrounds. This rural origin could be a contributing factor to the lack of awareness observed among these individuals. Various factors could explain this, including limited access to healthcare facilities, a reluctance to discuss sensitive topics such as breast cancer, a general lack of information on the prevalence of the disease, and ignorance regarding the signs and symptoms of breast cancer. These factors highlight the challenges faced in rural areas when it comes to health education and the dissemination of critical information. Socioeconomic factors, such as the annual income of the participants' families, also play a significant role in awareness levels. For instance, the study found that the majority of participants, accounting for 57.04% of the total, came from households with annual incomes ranging between 20,000 and 50,000 dollars. This income range suggests that many participants come from middle-income families, where access to information and resources may be limited compared to higher-income groups. This economic factor is important to consider when planning and implementing awareness programs, as it affects both the reach and the effectiveness of such initiatives. The data gathered before and after the implementation of the awareness programs is depicted graphically in the illustrations that follow in **Figure no 01** and **Figure no 02**. These illustrations offer a visual representation of the changes in awareness and understanding among the participants, highlighting the positive impact of the awareness programs. The study underscores the importance of targeted health education initiatives, especially in regions and populations where awareness levels are low, and it provides valuable insights into the factors that influence health awareness and education outcomes.
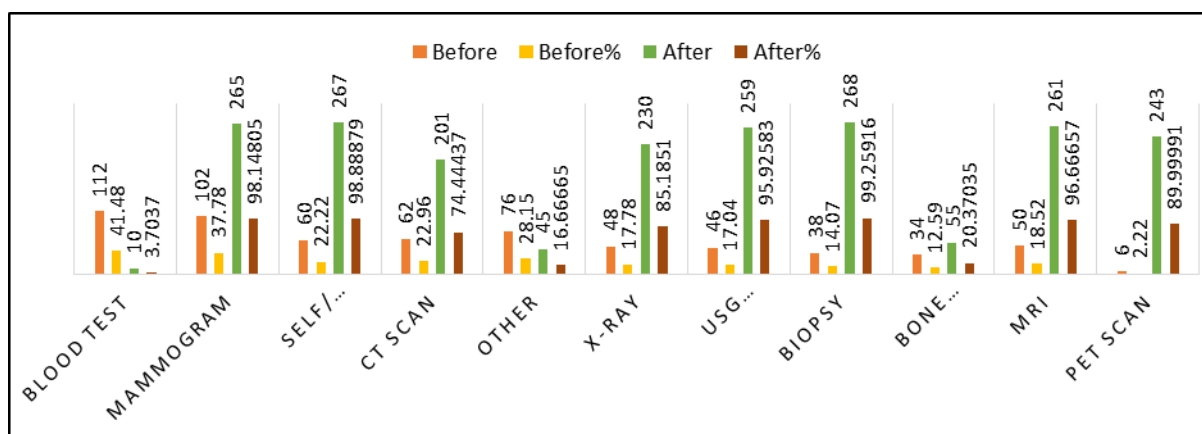

Figure No. 01: Tests done for breast cancer responses, before and after awareness programs.
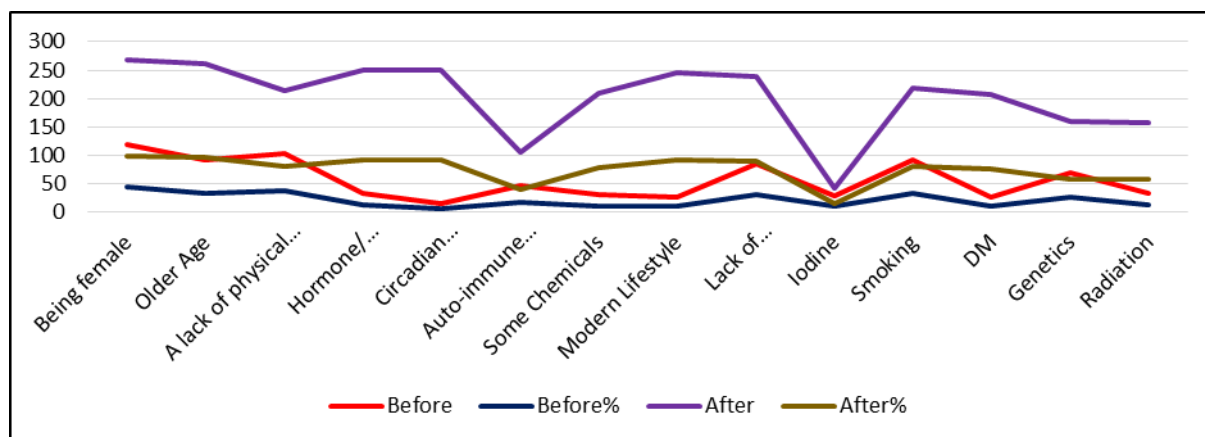
Figure No. 02: Risk factors of getting breast cancer responses, before and after awareness programs.

CONCLUSION

In a recent study, we discovered that a significant number of women lacked awareness of the recommended methods for performing breast self-examinations. This finding is particularly concerning given that breast cancer is a relatively common disease, and early detection through self-examination can play a crucial role in improving outcomes. The gap in knowledge highlights the urgent need for initiatives aimed at raising awareness about breast cancer prevention and detection. To effectively address this issue, it is essential to establish comprehensive awareness programs that not only educate women but also involve the broader community. These initiatives should include community events, expert-led lectures, and discussions that provide accurate information and encourage proactive health behaviours. Our research underscores the critical role that pharmacy students and healthcare professionals can play in these efforts. As future healthcare providers, pharmacy students are in a unique position to influence public health positively. By participating in awareness activities, they can help bridge the knowledge gap and promote early detection practices among the population. Teachers, in particular, have a significant responsibility in this context. They are instrumental in shaping the knowledge and attitudes of students toward health issues. By integrating breast cancer awareness into the educational curriculum and encouraging active participation in awareness programs, teachers can foster a culture of health consciousness among future healthcare professionals. This approach not only benefits the individual students but also contributes to the collective good of society by empowering them to become advocates for breast cancer awareness in their communities.

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CONFLICT OF INTEREST – None declared.

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