Int. J. Sci. R. Tech., 2025 2(12)
A Multidisciplinary peer-reviewed Journal
www.ijsrtjournal.com [ISSN: 2394-7063]

Original Article

Role of Pharmacist in Awareness and Management of Breast Cancer

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ABSTRACT

One of the most common cancers in women leading to death is breast cancer. The main reason for poor treatment results in Poland is inadequate response to the population-based early detection screening program for breast cancer. Women tend to ignore the initial symptoms, neglect breast self-examinations, and skip regular screening tests, which are crucial for preventing the disease, which is associated with insufficient education on the topic and the deficiency of visible promotional campaigns aimed at encouraging women to undergo regular preventive examinations. Local pharmacies, which are often visited by patients, are a good place to start working on breast cancer prevention. Pharmacists, as trusted health professionals, play a significant role in educating their patients about breast cancer and encouraging women to perform breast self-examinations and undergo mammograms regularly. The aim of this article is to review studies focusing on promotional campaigns for breast cancer awareness that are currently in place or ready to be implemented in pharmacies in many countries. Additionally, we will focus on how pharmacists can educate patients and encourage them to undergo screening tests to prevent breast cancer. This is such a crucial aspect because prevention of cancer is as important as treatment.

Keywords: Breast Cancer; Pharmaceutical Intervention; Pharmacist; Quality Of Life; Patient Education; Adherence ; Community Pharmacy, Breast Cancer Prevention, Health Promotion, Screening Test

INTRODUCTION

Breast cancer is a global health issue and the most common cancer among women worldwide, accounting for a significant proportion of cancer-related deaths. It occurs when the normal cells in the breast begin to grow uncontrollably and form a lump or tumor. If not detected and treated in time, it may spread to other parts of the body such as the lungs, bones, or liver. In India, the incidence of breast cancer has been steadily increasing due to factors such as urbanization, lifestyle changes, delayed childbirth, and lack of awareness about screening methods. According to the World Health Organization (WHO), early detection through screening programs like mammography and breast self-examination can significantly improve survival rates. Despite medical advancements, social stigma and fear associated with cancer often prevent women from seeking timely help. Therefore, awareness and education play a crucial role in improving public understanding of breast cancer. Pharmacists, being easily accessible healthcare professionals, can bridge this gap by providing counseling, promoting self-examination awareness, and guiding patients on available treatment options. The role of the pharmacist extends beyond dispensing medications — they act as educators, advisors, and health promoters in the fight against breast cancer. Through community outreach programs, awareness campaigns, and patient education, pharmacists can contribute significantly to reducing the burden of this disease.

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Breast cancer is the most common type of cancer among women, with its rates increasing by about 0.5% annually since the mid-2000s. It causes the highest number of cancer deaths in women worldwide. Despite increased social awareness, greater access to screening tests, and improved efficacy of cancer treatment, epidemiological forecasts indicate that cancer is projected to become the leading cause of death worldwide over the next several decades. The primary predisposing factors for the onset of breast cancer encompass gender dimorphism, with incidence rates in women surpassing those in men by a factor of 100. Additionally, advancing age, utilization of hormone replacement therapy (HRT), fluctuating estrogen levels, early menarche and late menopause, and genetic aberrations manifesting in BRCA1 and BRCA2 mutations are important risk factors. A woman can prevent breast cancer by avoiding alcohol consumption, leading a healthy lifestyle, performing regular recreational physical activity, performing regular breast self-examinations. Furthermore, it has been shown that early maternity, i.e., before the age of 35, has demonstrated a protective effect against the onset of the disease, as has the sustained practice of breastfeeding. Self-examination and clinical breast examination are essential elements of breast cancer prevention, especially where access to more advanced screening tests is limited. According to the American Cancer Society (ACS), mammography is the most effective screening test that can protect women with average risk from developing the disease. Both Polish and European oncological associations recommend mammography as the sole imaging examination for detecting breast cancer, as it increases the chances of survival through early detection of the disease in asymptomatic patients the discovery of mammography has led to a 14% increase in the cancer detection rate. While it is the main method of preventing breast cancer in screening programs, its effectiveness varies depending on breast density. In case of dense breasts, ultrasound examination is an important complement to mammography. Because it is a test dependent on the medical equipment and the radiologist performing it, so far it has not been include in the recommendations of most societies regarding screening tests. What is important, similar to any diagnostic modality, both mammography and ultrasonography can yield false-positive and false-negative results. They may suggest the presence of cancer when it is not actually present or they may overlook the occurrence of the disease. Therefore, new mammography capabilities, such as tomosynthesis, are being explored for the possibility of introducing them into screening studies. The use of other available diagnostic methods, such as magnetic resonance imaging, as a screening modality, is limited due to their high costs and the time that is necessary to perform the test. An additional problem is the high number of false positive results and a close dependence on menstrual cycle and patient's hormonal status. The use of magnetic resonance imaging (MRI) in screening is limited only to individuals at high risk of developing the disease — patients with BRCA genes mutation or with other hereditary breast cancer syndromes. Women's health is a critical aspect of overall well-being, yet there is often a tendency to neglect it due to societal

expectations and role. Breast cancer poses a significant challenge and is the leading cause of cancer-related death among women. According to data from the World Agency for Research on Cancer (IARC) in 2020, about 2.26 million women were diagnosed with breast cancer, and almost 685,000 deaths were caused by the disease globally. Despite the multiple effective therapeutic options, breast cancer is the leading cause of cancer-related death in women worldwide and the fifth most common cause of cancer death overall. Late diagnosis is a prevailing issue, resulting in reduced treatment efficacy and higher mortality rates. Most women with breast cancer have a good prognosis if the cancer is detected at an early stage and the patients have access to the appropriate treatment. Chemotherapy remains the standard of care for this type of disease, although complementary and alternative treatment methods are also described in the literature. Despite remarkable progress in this setting to date, some patients will see their disease return in the long term, which is why there is a critical need to continue to optimize early breast cancer care and to take additional measures to prevent the disease from evolving into an advanced, incurable stage. Breast cancer treatment is a complex and multi-step process, the outcome of which depends on the cooperation and coordination between different healthcare providers. After diagnosis, patients need to be provided with detailed chemotherapy education, including the mechanism of action of chemotherapy agents, treatment goals, possible side effects, and symptom management. Therefore, according to the current recommendations of the European Association of Medical Oncology (ESMO), the treatment should be carried out by a multidisciplinary team consisting of a medical oncologist, a surgeon, a radiation therapist, a pathologist, and a specialized (best in breast cancer) oncology nurse. Patients should be actively involved in all management decisions during the therapeutic process. The result of the healthcare team's efforts depends to a large extent on the involvement of the patients and their clear understanding and support of the jointly selected therapeutic decisions. For more than 50 years, oncology pharmacists have proved to be core multidisciplinary team members in the care of patients with cancer. Recent studies confirm oncology pharmacists' contribution to better patient outcomes, including a reduced number of drug-related problems (DRPs), improved quality of life (QoL), and increased adherence rates. Additionally, pharmacist-led interventions in oncology care have been reported to be cost-effective and cost-saving [15,16]. The role and activities of oncology pharmacists are continuously expanding, and now this role is focused on patient-centered care. Common roles for oncology pharmacists, their clinical functions, and different settings for professional development, have been comprehensively discussed by Holle et al. One of the key activities provided by oncology pharmacists is patient counseling and education. Oncology pharmacists meet and monitor the patient throughout the course of treatment to assess and reduce the potential for adverse drug reactions (ADRs). This helps build a relationship between pharmacists and cancer patients and can be a key element in identifying ADRs as well as ensuring medication adherence. The results of a recent interventional study show a significant improvement in medication adherence rates after education and counseling provided by pharmacists. Pharmacists can play a crucial role in managing patients with breast cancer as part of the healthcare team. Their responsibilities encompass various aspects of pharmaceutical care, including medication management, education, and support (Figure 1). Aiken and colleagues demonstrated in their study that effective communication and collaboration among physicians, nurses, pharmacists, and physiotherapists positively impact the quality of their work, the quality of patients' lives during oncological treatment, and ensure a higher level of patient safety throughout the treatment process. Therefore, it is essential for the interdisciplinary team to operate efficiently and comprehensively, providing holistic care to patients. A team consisting of multiple specialists from various fields allows for the coordination of different aspects of care, enabling the delivery of personalized care to patients. Also important is the individual approach to each patient, who is unique both medically and personally. The interdisciplinary team can tailor care to the individual needs and preferences of the patient, leading to a more personalized approach to treatment. By considering diverse perspectives and recommendations regarding best practices in cancer prevention and treatment, optimization of therapy, risk reduction, and improved treatment outcomes can be achieved. Interdisciplinary approach also impacts

the provision of emotional, educational, and practical support, aiding patients and their families in coping with the disease and treatment.

Causes and Risk Factors

Common risk factors for breast cancer include:

- Family history of breast or ovarian cancer
- Hormonal imbalance or long-term hormone therapy
- Obesity and sedentary lifestyle
- Excessive alcohol consumption and smoking
- Late pregnancy or no breastfeeding
- Exposure to radiation and unhealthy diet

Social Impact of Breast Cancer

Breast cancer not only affects the patient physically but also emotionally, socially, and economically. Women may face fear, anxiety, and social stigma, especially in rural areas where awareness is low. Many patients hide their symptoms due to embarrassment or lack of knowledge, which delays diagnosis and treatment. Economic challenges also arise due to high treatment costs.

Role of Pharmacist

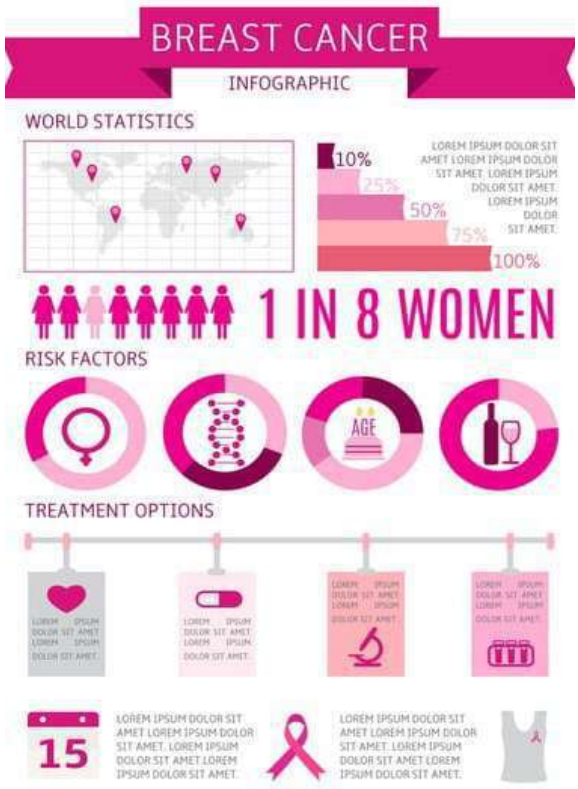
reduction of ADRs (nausea and vomiting) and facilitated the rational use of anti-emetic drugs. The beneficial effect of pharmacist-led intervention on patient knowledge was also demonstrated by Dang et al. Pharmacist-led pre-chemotherapy counselling led to improvements in patient knowledge scores and a better understanding of the chemotherapy regimen and side effects. 3.3. Adherence Assessment Four of the included studies assessed the change in adherence rate after pharmacist-led interventions [13,23,31,34]. A study conducted in the USA by Muluneh et al. described an innovative model involving the integration of a closed-loop, pharmacy-led oral chemotherapy management program at ambulatory oncology clinics. In this closed-loop model, clinical pharmacists specializing in oncology were integrated into breast oncology clinics to manage patients receiving oral chemotherapy. One of the activities of clinical pharmacists was to assess and enhance the adherence to oral chemotherapy, which was performed at every patient encounter. For measuring adherence, patient self-reports and medication possession ratio (MPR) were used. After pharmacist-led interventions, patients achieved a self-reported adherence rate of 86%, which was verified by the MPR calculation of 85% (the goal adherence rate was >80%). Another study conducted in the USA aimed to assess the feasibility of an intervention for symptom monitoring and management, which clinical pharmacists facilitated to improve adherence to breast cancer adjuvant endocrine therapy (AET). In this pilot study, clinical pharmacists used guideline-based symptom management and adherence supporting tools with nonadherent breast cancer patients. In the six-month study period, 44% of patients became adherent. Despite its small sample size (only 18 patients), this intervention has promising potential to enhance support and self-efficacy and improve patient symptoms and adherence rates. A recent quality improvement project describes different interventions provided by outpatient clinical pharmacists for improving management and adherence to oral cancer

therapy. A total of 31 adherence counseling interventions were documented, including different methods such as medication calendars and increased monitoring frequency. Other pharmacist-led interventions included in this project consist of medication reconciliations and clinical recommendations (e.g., therapy modification, dose adjustments, toxicity management, and monitoring). The findings from this project indicate that the incorporation of a clinical pharmacist in a multidisciplinary team was associated with decreased treatment day delays (from 7.7 days in the pre-intervention assessment to 2.1 days after the implementation of the program.

Preventive Measures and Health Education

Prevention is always better than cure. Pharmacists can promote healthy habits and lifestyle changes such as:

- Regular exercise and maintaining a healthy weight.
- Avoiding alcohol and smoking.
- Promoting breastfeeding.
- Conducting awareness programs during Breast Cancer Awareness Month (October).
- Educating women about the importance of mammography and regular health check-ups.



CONCLUSION

Breast cancer is a major public health concern that requires combined efforts from healthcare professionals and society. Pharmacists play a key role in promoting awareness, providing counseling, and supporting patients throughout their treatment journey. Through proper education, early detection, and community involvement, the burden of breast cancer can be significantly reduced. This scoping review highlighted four key themes related to clinical pharmacist-led interventions for improving breast cancer management: patient education and counseling, adherence assessment, management of adverse side effects and drug interactions, and improving QoL. Patient education is an essential element in the treatment of cancer patients and is vital to the success of oral treatment [36]. The transition from intravenous delivery of medications to oral therapy allows for more opportunities to improve the way of prescribing, dispensing, and monitoring the therapeutic process [18]. Oncology pharmacists are uniquely positioned to improve patient care in each of these areas [37]. They can play an important role in the education process of breast cancer patients by providing information on prescribed medications, potential side effects, drug interactions. his scoping review highlights the beneficial effects of the involvement of pharmacists in breast cancer management, such as better QoL, reduced drug interaction risk, greater adherence rates, and improved patient knowledge. Additionally, some pharmacist-led interventions were reported to be cost-effective or associated with a high level of patient satisfaction. This underscores the importance of incorporating a clinical pharmacist into the oncology team caring for patients with breast cancer. The findings summarized in the review could serve as a strong foundation for future research. More randomized controlled studies involving a larger sample of breast cancer patients are needed to confirm the clinical and economic benefits of pharmacist-led interventions.

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HOW TO CITE: Shital Boraste*, Dr. Ashwini Shewale, Rutuja Solase, Kajal Algur, Deepika Choudhary, Arti Mote, Kajal Mandal, Role of Pharmacist in Awareness and Management of Breast Cancer, Int. J. Sci. R. Tech., 2025, 2 (12), 353-360. https://doi.org/10.5281/zenodo.18042272