

BREAST CANCER IN HISTORICAL CONTEXT: SHIFTS IN UNDERSTANDING AND TREATMENT AMONG FEMALE

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ABSTRACT

Breast cancer is one of the most common malignancies affecting women worldwide. Throughout history there has been considerable progress in the comprehension, identification and treatment of this illness. Breast carcinoma is a disease in which abnormal cells in the breast grow out of control and form tumors. If left untreated, these tumors can be fatal and can spread to other parts of the body. The major risk factor for the development of mammary cancer is being female, almost 99% of cases are diagnosed in women and 0.5 - 1% in men (WHO). Treatment of male breast cancer is essentially the same as for females. This study is an attempt to look at the historical perspectives of female breast cancer in the context of health. The study maps the evolution of medical knowledge, societal attitudes and healthcare legislation to reveal how gendered viewpoints have influenced both the diagnosis and treatment modalities for breast cancer. Therefore, the study tried to analyze its stages, types, symptoms, risk factors and also points out a number of initiatives taken by the government to fight breast cancer through early detection and prevention.

KEYWORDS: Breast cancer, symptoms, risk factor, types, historical analyses

INTRODUCTION:

The first documented case of breast cancer is found in the Egyptian Civilization. One of the earliest recorded references to breast cancers is in the Edwin Smith Papyrus written in 3000 BC. The father of medicine, the great Hippocrates, had classified breast cancer as a humoral disorder, resulting from an excess of black bile. Medical science in the middle ages was at a dead end and treatments were rudimentary. Medicine was steeped in spiritual and mystical beliefs. Anatomical studies by figures such as Andreas Vesalius revived the field of medicine during the Renaissance. Surgeons started to perform mastectomies, but these were very dangerous operations without the help of antiseptics or anaesthetic. Medicine entered a period of scientific rigor during the Enlightenment.

Eighteenth century pioneers of the techniques of mastectomy were the Scottish surgeon Benjamin Bell and the French surgeon Jean Louis Petit. Improvements in surgical technique in the nineteenth century, together with the introduction of anesthesia and antisepsis, greatly reduced death rates. William Stewart Halsted pioneered the radical mastectomy in 1882, a revolutionary yet invasive operation that involved the removal of breast tissue, underlying muscles and lymph nodes. The discovery of radiation therapy by Marie Curie was a big step forward in effective treatment methods. Chemotherapy and hormone therapy also began in the middle of the 20th century.

In the 1970s, lumpectomy plus radiation became an alternative to the more invasive radical mastectomy. Clinical trials and randomized studies were the basis for evidence-based practice and led to significant improvements in survival. The treatment of breast cancer at present depends on personalization. Breakthroughs made in genetics studies, especially identification of BRCA1 (BRCA1 Breast Cancer gene 1) and BRCA2 (BRCA2 Breast Cancer gene 2), are making personalized treatments possible for breast cancer patients. Immunotherapy, precision medicine, and advancements in diagnosis techniques such as mammograms and MRI help in improving the chances of surviving. Awareness campaigns and early screening programs have been instrumental in raising survival statistics.

INTENTION OF THE STUDY

The current research endeavors to provide an extensive understanding of the extent to which historical interpretations continue to shape contemporary practice and experiences by analyzing breast cancer from its historical background. The specific intentions of the study are as follows:

- To explore how breast cancer has changed historically, taking into account early allusions, the advancement of diagnosis and treatment methods;
- To analyze the prevalence and death rates and awareness of Breast carcinoma across different nations;
- To evaluate preventative actions and early detection techniques like self-examination, lifestyle modifications, public health education and also to highlight various welfare and awareness initiatives implemented by the Government.

For this study, both analytical and descriptive methodology was applied. In this analysis both primary and secondary data have been used. A study on this area is required and important in the present day.

COUNTRY ANALYSES OF BREAST CANCER INCIDENTS

One type of cancer that starts as cell proliferation in breast tissues is called breast cancer. Breast cancer arises from the mutation of breast cells into cancerous cells that proliferate and develop

into tumors. About 80% of mal neoplasm of breast is persistent like it spreads from breast to all parts of the body. Analysis of breast cancer would employ methods of testing and screening, including MRI, ultrasound, and others. Breast cancer prevalence varies from one country to another due to differences in genetics, personal preferences, health care services, and screening campaigns. Advanced countries like America and several others in the Eurozone register high incidences of breast cancer. It is usually attributed to effective screening programs, which enable early detection and diagnosis. Despite their higher breast cancer incidences, they generally experience low mortalities due to timely intervention and advanced health systems. Below are some of the top countries with the highest incidences of breast cancer among women as at the current year 2022 (**Table 1 & 2**).

TABLE -1 (COUNTRIES WITH HIGHEST FEMALE BREAST CANCER INCIDENCE, 2022)

Rank	Country	New cases in women	*ASR/100.000
	World	2,296,840	46.8
1.	China	357,161	33.0
2.	US	274,375	95.9
3.	India	192,020	26.6
4.	Brazil	94,728	63.1
5.	Japan	91,916	74.4
6.	Russia	78,839	57.7
7.	Germany	74,016	77.0
8.	Indonesia	66,271	41.8
9.	France (Metropolitan)	65,659	105.4
10.	UK	58,756	94.0

Source: World Cancer Research Fund, Breast Cancer Statistics.

Note: * Age-standardized rate (ASR) has been mentioned for each of these countries.

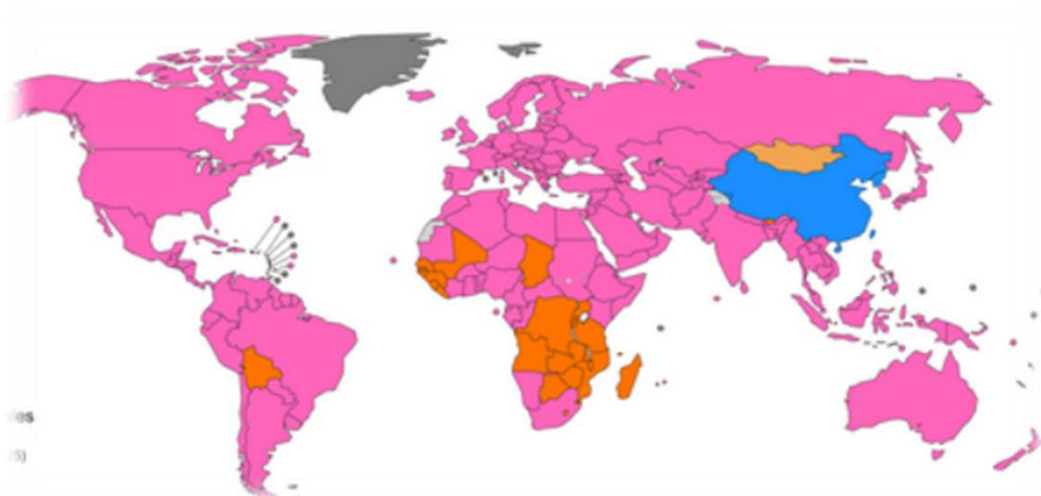
TABLE – 2 (ASR (WORLD) PER 100 000 FOR INCIDENCE AND MORTALITY AMONG FEMALES)

Country	incident	Mortality
Northern America	95.1	12.3
Oceania	91.5	15.4
Europe	75.6	14.6
LAC	52.0	13.2
Africa	40.5	19.2
Asia	34.3	10.5

Source: International Agency for Research on Cancer, World Health Organization, 2022

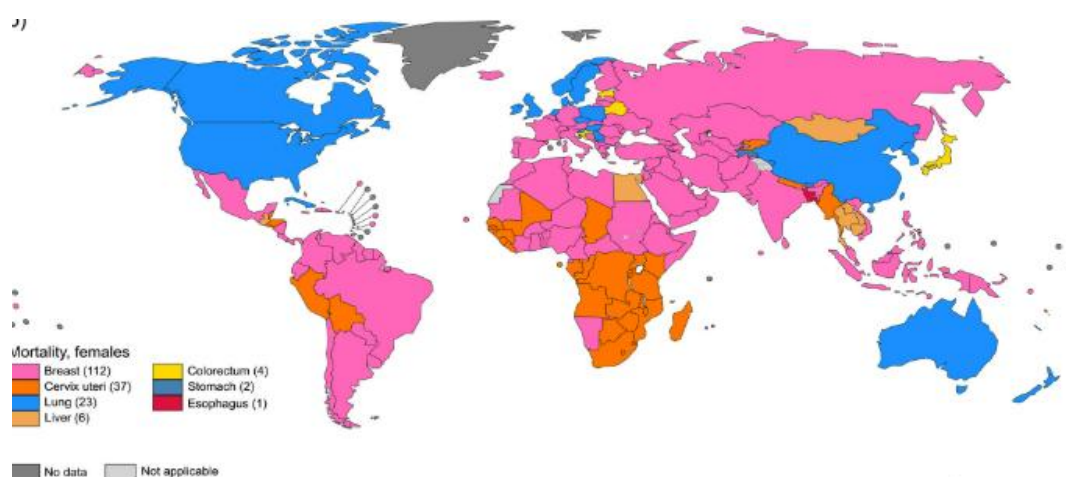
On the other hand, with an Age-Standardized Mortality Rate (ASMR) of 13.41 per 100,000 women, the highest death burden was in South Central Asia. These findings emphasize the

complexity of the relationship among the socio-economic conditions, cultural context, and healthcare facilities regarding breast cancer treatment and detection in different regions. Conversely, two types of cancer like cervical and breast stand out in terms of how frequently they manifest in women. Compared to new cases, the picture becomes more mixed when it comes to cancer-related deaths. However, lung cancer is the leading cause of death in 23 countries, while breast and cervical cancer are the leading causes in 112 and 37 countries, respectively. (Figure 1, 2).



SOURCE: World Health Organization

FIGURE 1 - GLOBAL DISTRIBUTION OF WOMEN'S MOST COMMON CANCERS 2022



SOURCE: World Health Organization

FIGURE 2 - GLOBAL DISTRIBUTION OF THE MOST COMMON CANCER MORTALITY, 2022

TYPES OF BREAST CANCER:

Public healthcare systems offer various services for breast cancer, including screening, treatment as well as diagnosis. They treat both invasive and non-invasive forms of breast cancer, the most prevalent of which is called Invasive Ductal Carcinoma (IDC), which starts in the milk ducts and spreads to surrounding tissue. While non-invasive varieties, such as ductal carcinoma in situ (DCIS), are limited to the ducts and have not moved to surrounding tissues, another prevalent kind is Invasive Lobular Carcinoma (ILC), which begins in the milk-producing glands and can spread similarly. Additionally, the less common varieties of breast cancer include Inflammatory Breast Cancer (IBC), which spreads more quickly than other types, and Triple-Negative Breast Cancer (TNBC), which are the rate and most aggressive form of breast cancer looks like a rashes on your breast. And ANGIOSARCOMA, which is a rare sarcoma that begins in the breast cells lining lymphatic or blood channels. Elaborated investigation of the molecular mechanisms revealed the significance of Estrogen Receptors (ER), Progesterone Receptors (PR) and Human Epidermal Growth factor Receptor (HER2) in Breast Cancer. Estrogen and progesterone can grow hormone receptor-positive breast cancer cells by binding to them and giving a signal for those cells to divide. Often these hormones or their levels are blocked with hormone treatments to reduce the cancer.

SYMPTOMS FOR BREAST CANCER:

Certain signs of breast cancer are extremely unusual. Other symptoms include the perception that certain regions of breast are distinct from others. It's also possible that breast cancer won't cause the obvious symptoms. Symptoms include a nipple that seems flattened and turns inward, a breast lump or thickened region of skin that feels extremely different, and changes in the size, shape, and appearance of a breast, when compared to the other parts of your body that surrounds the breast tissue; Changes in Breast colour like Person with fair skin their skin colour may pink and person whose skin is dark the breast may look darker or it red or purple; the skin on the breast may peel, scale, crust or flake; pelt on the Breast looks dimples or looks like an orange peel; a marble like hardened skin on breast or under breast; A lump or thickening in or near breast or in underarm that it keeps on through menstrual cycle; a blood or a clear fluid leak from Nipple; mass or lymph feels like a pea inside of your breast

RISK FACTORS:

Numerous biological and lifestyle factors influence the risk of breast cancer, and these factors frequently compound over time. Since women account for 99% of all cases, being a woman continues to be the most significant risk factor. The risk also naturally increases with age, especially after the age of fifty. Having a close relative with the illness and genetic factors such as mutations in the BRCA1 or BRCA2 genes also play a major role. Starting menstruation before the age of twelve or

going through menopause after the age of fifty five can raise vulnerability because many of these hazards are linked to the length of time a person is exposed to estrogen. Similarly, the risk may be increased by never having children or by having a first kid after the age of thirty. Dense breast tissue and a personal history of other cancers, such as ovarian or colon cancer, are physical concerns that should also be taken into account. Beyond biology, a person's overall health profile can be influenced by modifiable lifestyle choices such heavy drinking, inactivity, and weight gain during menopause. Being one of the primary unchangeable risk factors for breast cancer, 56.5% of women believed that a family history of the disease was a risk factor for its development, according to the graph in **Figure 3**. Among the prevalent modifiable risk factors, the following percentage of women believed smoking (26.5%), eating an unhealthy diet (32.4%), excessive alcohol use (24.9%), and physical inactivity (42.9%) caused breast cancer. In comparison, a higher percentage of women knew about modifiable risk factors than about non-modifiable ones.

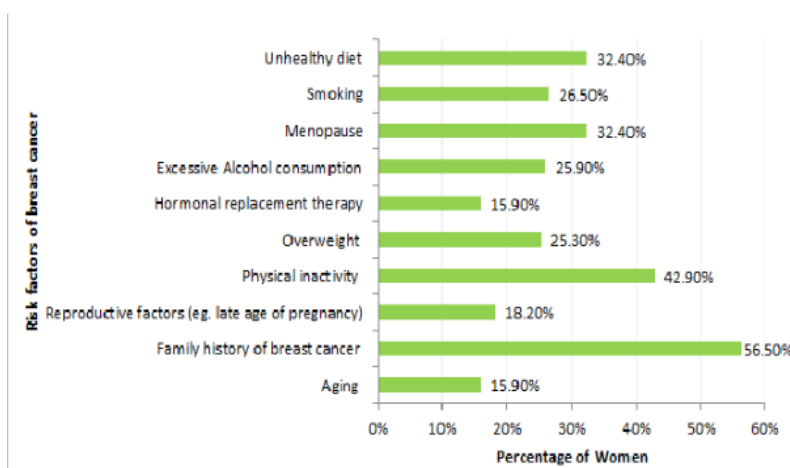


FIGURE 3 - RISK FACTORS OF BREAST CANCER

STAGES FOR BREAST CANCER:

From non-invasive Stage 0 to metastatic, advanced Stage IV cancer, breast cancer is categorized into stages. These phases inform therapy choices and aid in assessing the cancer's spread.

Stage 0 : This stage is non-invasive, It has not spread beyond your breast ducts.

Stage I: At this stage, the disease is limited to the breast and may involve surrounding breast tissue. It is considered an early stage of the disease and has not progressed far beyond the breast.

Stage II: The cancer has grown into a tumor. The tumor may be approximately 2 cm in size and have spread to the lymph nodes under the arm, or it may be larger than 5 cm but have not migrated to the lymph nodes under the arm. In certain cases, the tumor measures 2 cm to 5 cm and may or may not have migrated to the axillary (underarm) lymph nodes.

Stage III: The malignant breast cell is close to the tissues and lymph nodes. In reality, it was a reference to advanced breast cancer.

Stage IV: Bones, livers, the brain, and the lungs are just a few of the body regions where cancer has spread.

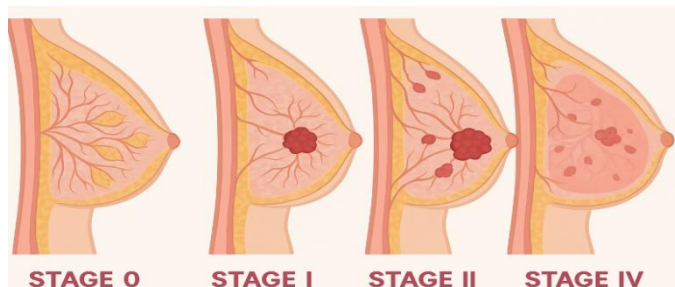


FIGURE 5 - STAGES OF BREAST CANCER

MAJOR APPROACHES IN BREAST CANCER TREATMENT

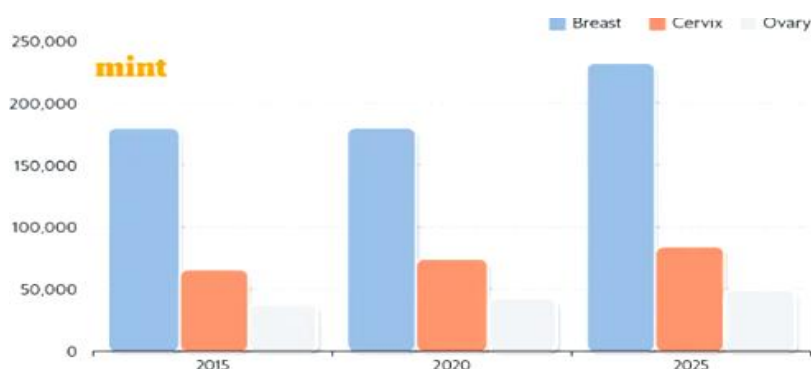
Treatment for breast cancer is determined by the type, stage, and unique characteristics of each patient. Surgery (lumpectomy or mastectomy), radiation therapy, chemotherapy, hormone therapy, and targeted biological therapies are common methods. In early stages, surgery followed by radiation is typical. In more severe cases, systemic therapies may be needed, such as chemotherapy or biological therapy. Ongoing management involves regular follow-ups, imaging, and sometimes long-term medication to prevent recurrence. The available treatment and surgery are mentioned below:

- a. **Breast cancer surgeries** are: Mastectomy; Lumpectomy; Breast reconstruction; Wide Excision; and Quadrantectomy.
- b. **Breast Cancer Treatments** are: Chemotherapy (US, Japan, Canada, Turkey, France, India are important countries that have this treatment to cure breast cancer); Immunotherapy (US, France, Germany, South Korea these countries offer affordable and quality treatment to the patients); Targeted therapy (US, Japan, Switzerland these countries giving high standard treatment to the patients); Radiation therapy (US, France, Turkey, India, Japan, Canada provides advanced radiation therapy for breast cancer); and Hormone therapy (Canada, Japan, India offers innovative hormone therapy to the breast cancer).

INITIATIVES:

Emphasizing breast, cervical and ovarian cancers, the below mentioned **Figure 4** shows the expected number of cancer cases among Indian women for the years 2015, 2020 and 2025. In India, breast cancer is the most common cancer diagnosed in women, with an estimated 150,000 instances reported in 2015 and over 225,000 expected in 2025, according to WHO data. Over the same time period, the incidence of cervical cancer increased moderately from about 70,000 to nearly 90,000 cases, while that of ovarian cancer, which has the lowest incidence, increased gradually from 30,000

to about 45,000 instances. These patterns underscore the need for early detection, more public awareness and more robust healthcare interventions in view of India's rising cancer burden. In order to accomplish these needs, a number of national and international initiatives have emerged.



SOURCE: International Classification of Diseases, WHO

FIGURE 5 - ESTIMATE TRENDS IN NUMBER OF CANCER CASES IN FEMALE IN INDIA FROM 2015 TO 2025

The goals of numerous national and international programs pertaining to breast cancer are to increase public awareness, encourage early identification through screenings, finance research, offer patient and survivor support. The Global Breast Cancer Initiative was started by the World Health Organization with the goal of improving outcomes and lowering the death rate from breast cancer worldwide by means of prompt diagnosis, thorough treatment and early detection. The main intention of this program is to guarantee that all women, irrespective of their residence, have access to necessary breast cancer care and assistance. In order to collect and analyze data and make evidence-based policy decisions, the ICMR's National Cancer Registry Programme (NCRP) has been monitoring cancer incidence, burden and trends since 1982. As part of the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), the National Institute of Cancer Prevention & Research (NICPR) serves as the nodal body for research and screening recommendations. Strong regulations, targeted interventions and financial aid programs have been implemented by the Indian government to improve patient care, prevention, early identification and treatment across the country. The prevalence of cancer in India is discussed, along with government initiatives, funding, research and budgetary commitments to improve cancer care.

**Union Budget 2025-26
towards Cancer Prevention
and Rehabilitation**



With a total of 99,858.56 crore allotted to the Ministry of Health and Family Welfare, the Union Budget 2025–2026 demonstrates the Government of India’s strong commitment to improving cancer care. In order to lower treatment expenses, major measures include the creation of 200 Day Care Cancer Centers at district hospitals and the exemption of 36 life-saving medications from customs duties. Under the NPCDCS initiative, efforts are made to enhance cancer care services by increasing access to affordable treatment and improving medical infrastructure, especially for cancers affecting the mouth, breast and cervix.

Through programs like the Ayushman Bharat Yojana and the Strengthening of Tertiary Care for Cancer, the government is growing tertiary care facilities in an effort to improve specialist treatment and decentralize it. The above stated programs also provide funding for organizations like the National Cancer Institute, State Cancer Institutes (SCIs) and Tertiary Care Cancer Centres (TCCCs). Moreover, the Health Minister’s Cancer Patient Fund provides monetary assistance to those cancer patients in need of help with their treatment. Additionally, the National Cancer Grid has helped boost cancer services in India by linking 280 cancer treatment centers across the country, thus ensuring standardized and scientifically backed treatment practices. India is also witnessing some developments in the international cooperation sector and cancer research. One of the notable innovations in terms of providing cost-effective treatments for blood cancers involves the creation of the NexCAR19, which marks the country’s first CAR-T cell therapy developed locally. The purpose behind international partnerships like the Quad Cancer Moonshot Initiative is to eliminate cervical cancer in the Indo-Pacific region. Therefore, the government has undertaken a holistic approach to

tackle cancer with an array of measures including raising awareness, implementing digital health solutions and advocating healthy lifestyle initiatives such as Eat Right India and Fit India.



PRECAUTIONARY MEASURES FOR BREAST CANCER

Healthy behaviors including eating a balanced diet, exercising regularly, maintaining proper body weight, abstaining from smoking and moderating alcohol intake, can reduce the risk of breast cancer. Breastfeeding, if possible, can be preventive since it promotes good breast health and helps in balancing hormones in the body. Small efforts, when taken cumulatively, will make a significant difference, and overall wellness is improved. Stress can be managed by relaxation techniques and mental well-being assessments to improve the immune system and balance of hormones. Minimizing contact with hazardous radiations, such as excessive X-ray exposures and sunlight, should also be prioritized. Early detection of breast cancer makes treatment easier and more effective. Frequent self-assessment of the breasts and noticing any anomalies can be beneficial for early diagnosis of breast cancer.

CONCLUSION

In all, breast cancer remains a serious disease around the world, making the research on the disease crucial with regard to its diagnosis, various forms, and stages of development. Since many awareness programs are being held in India under the Government of India, the current research aims to examine the risk factors and preventive measures for breast cancer, among other things. All women should keep checking themselves if anything seems abnormal. Seen from a perspective of history, there has been a change from how breast cancer was viewed as long ago, including its description and even the stigma attached to it, to the current scientific way of diagnosing, early detection, and effective treatment, thereby showing the improvements brought about by changes in knowledge.

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