

**Review Article****Factors Contributing for Breast Cancer in Pakistan: A Meta-Analysis on Last Decade Studies on Breast Cancer**Hafiza Saba Javed<sup>1</sup>, Muhammad Irslan Khalid<sup>1</sup><sup>1</sup>Aziz Fatima Nursing College, Lahore, Pakistan.[alizaahemad789@gmail.com](mailto:alizaahemad789@gmail.com)**ARTICLE INFO****Key Words:**

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[alizaahemad789@gmail.com](mailto:alizaahemad789@gmail.com)**ABSTRACT**

Breast cancer is the most common malignancy among women around the Globe. Asian countries have highest ratio of breast cancer. About 60 % cases from Asian countries due to lack of health care facilities and awareness about breast cancer in general population. Classification based on age, stage of disease, location of development and family history. Breast cell tumor due to gene mutation prognosis the disease into malignancies. Symptoms may appear in early stage or late stages of disease **Methods:** The literature review was conducted through different sources such as Google scholars, PubMed, MEDLINE and data base. The key words was used breast cancer incidence in Pakistan, prevalence of breast cancer, causes of breast cancer in Pakistan. Only those studies was selected published during the period of 2010 to 2020 and published in English. **Results:** From this literature review, following factors has been identified, effecting on breast cancer development. Lack of knowledge about breast cancer development. Lack of health care facilities in rural areas, family history and economic problems. **Conclusions:** Pakistani women are unaware of breast cancer knowledge. Low health care budget, early identification of disease, family history of breast cancer are major contributing factors of breast cancer.

**INTRODUCTION**

Breast cancer (BC) is the proliferation of breast cells or unwanted growth of breast cell. It is most common malignancy among women in the world. One in every eight women is suffering from (BC), and 1 in every 39 women dyeing because of this cancer in the world, which is highest ratio of case incidence and case specific mortality respectively. Globally about 17 million all types' cancer cases diagnosed every year, among them about 1.3 million women diagnosed with BC. In USA about Asian continent is the most populous region of world. 60% population living in Asian countries [1]. There is highest incidence and prevalence of cancer in Asian countries. About 8.2 million newly diagnosed cancer cases every year in Asia, in which about 404,000 cases of BC. In Pakistan 178388 people diagnosed with all kinds of cancer in 2020, among them 25,928 newly diagnosed cases with BC which is highest ratio in Asia. Every woman is at risk of BC besides age,

marital status, race, ethnicity, or region [2]. Classification of BC with different perspectives such as origin of cancer, stages of disease development, grading and involvement of organs. It may depend upon female reproductive history and menstrual cycle history from onset of menarche, history of hormonal fluctuation, women with no live child birth, older ages, a little or less breast feeding, late marriages and late conception may enhance the risk of BC [3]. Symptoms differ in appearance on the basis of location and grading of BC. Some women are not aware of common symptoms that leads to advance stage diagnosis, or end stage diagnosis. Women have less knowledge about self-breast examination and screening tests such as mammography. Breast lump most common identification of breast cancer development [4]. Thickening of breast tissue, nipple changes, nipple discharge, and discoloration of nipples, skin rashes, breast pain, one breast

enlargement and breast lowering are most common symptoms for early stage detection of BC. Early diagnosis and treatment leads to more prognosis of disease. Thus, reduces the case fatality and case specific death ratio.

The malignancy starts from breast cell tumor and involves lymph nodes. Mostly it is originated from inner lining of milk ducts (ductal carcinoma), sometimes involvement of lobules (supply of duct with milk) called lobular carcinoma. Any resistance or gene damage wrongly identify or decode the protein may lead to BC development. Gene mutation reduces the cell intrinsic response thus cell growth reduces ultimately cell death. It will resist the normal control and functioning of cell, apoptotic cell death change into necrosis and cell swelling because of signals dependency [1]. The management of BC depends on stage of diagnosis, type of BC, type of surgeries, followed by chemotherapy and radiotherapy. Mass education and training on breast self-examination may reduce the

mortality rate and helps for early disease diagnosis and its management [6].

**Methods:**

Multiple sources were searched for information about breast cancer and its risk factors. There were 25 articles about breast cancer prevalence in Pakistan Asia and worldwide. After screening of abstracts, there were 12 relevant articles. The information data was searched out through Medline, PubMed, Google Scholars, Public Library of Science and American Cancer Society (2019-2020). Index terms for search (Risk Factors of Breast Cancer) and (co-morbidities association with breast cancer) commonly used. American Cancer Association (2016) and (2019, 2020) also studied for detailed review of BC. We considered a systematic review conducted by expert's panel committee of the International Agency for research on Cancer and American Institution for cancer.

No	Factors Identified	Effects on breast cancer
1	Smoking, gene mutation, Physical activity, family history	Smoking increases stress and causes gene mutation in body. Physically inactive women and patients with family history of breast cancer have more chances of breast cancer [4]
2	Breast examination knowledge	Women especially from rural areas didn't aware of breast cancer development in early stages. They have a little knowledge about breast self-examination [7]
3	Knowledge, lack of Resources	Women from rural areas of Sind have a little resources of medical facilities and less knowledge about breast cancer, disease diagnosed in late stages [3]
4	Smoking, family history, underlying medical conditions	Patients with multiple disorders such as Hypertension, diabetes, and with family history of breast cancer have more chances of breast cancer than others [6]
5	Contraceptive pills, family history, hystectomy	The use of contraceptive pills major contributor of breast cancer. Patients with family history and hystectomy have breast cancer in later stages than others [8]
6	Knowledge about BC risk factors, Self-breast examination	Knowledge about breast cancer more important to diagnosis in early stage. Women with knowledge of self-breast examination diagnosed in early stages than women with a little knowledge [9]
7	BMI, physical activity	Patients with BMI more than 24 are getting breast cancer development than patients with low BMI. Physical inactivity increases BMI thus it enhances the risk of breast cancer development [5]
8	Smoking, family history, marital status, no. of pregnancies	Patients with early menarche, late marriage and nulliparous getting breast cancer. Smoking increases free radical exposure thus stress factor increases in body [10]
9	Gene mutations	BRC1 is the major responsible gene mutation and changes in transcriptional and translational changes contributes in breast cancer development. Another gene KA11 causes disease progression. Suppression of KISS1 have potential role in breast cancer [11]

10	Factors associated with breast cancer	Five risk factors which are significantly associated with breast cancer in multivariate analysis in the study, including breastfeeding duration per child, HTN, family history, physical activity and BMI [12]
11	Incidence and prevalence of breast cancer in Asia	Incidence and prevalence of breast with associated factors increases from 1990 to 2019. The death rate counted double due to breast cancer in last three decades. High BMI, high fasting plasma glucose, smoking and sedentary life style contributing in breast Cancer [13]
12	Genetic factors associated with breast cancer	DNA sampling was done to assess the mutation and causes of gene mutation in breast cancer. BRCA1 coding by use of PCR. They found BRCA1 mutation due to high levels of estrogen and progesterone hormones in married women and women with breast feed [14]

**Table 1:** Risk factors of breast cancer among Pakistani women

### Results:

From literature review, there are some factors identified most commonly causing BC in Pakistan. Family history, increased BMI, marital status, lack of health care facilities, and lack of knowledge about breast self-examination are most important factors contributing in breast cancer development in Pakistan.

### DISCUSSION :

Breast cancer is most frequent malignancy around the world. It is the second leading cause of death among women in Pakistan. There are some non-modifiable risk factors such as gene mutation due to family history, early onset of menarche, late menopause, age, gender and ethnicity. Inheritance of gene mutation in BRCA1 and BRCA2 increases the risk of breast cancer about 45%. Studies showed that BRCA mutation indicates early age BC and hospitalization as compared to other gene mutations such as CHEK2, PTEN, CGH1 and STK1 [15]. A major risk factor is family history in first blood relative with BC and other types of cancers. First degree relative increases two times risk of BC [16, 17].

In comparison of race, ethnicity and origin, Hispanic American women have less risk of BC development. There is reduced risk of BC in Asian and Malaysian women in comparison to general population of US. In Asia, Pakistan has highest ratio of BC. This is because of low health care facilities in Southern Punjab, Sind and KPK. Women have less knowledge about disease development process, breast self-examination and yearly mammography after age of 40 years [18]. Early menarche, late menopause are also associated factors of BC. It is due to long term exposure to estrogen and progesterone hormones. Several studies link the association between long term exposures

to these hormones [6]. There is an increased risk among women with already suffering medical conditions such as polycystic ovarian disease, hormonal replacement therapy etc. [19]. There are some modifiable factors to prevent BC. Obesity is one of the major risk factor, being overweight increases the risk of BC two times. Due to body fats insulin levels increases and higher insulin levels is associated with increased risk of BC [20]. A high BMI and low level of physical activity increases the risk of BC while underweight BMI in younger age can reduce the risk. Its incidence can be reduced through management of multiple factors such as awareness program among females, health care facilities in rural areas, use of contraceptive pills and annually mammographic campaigns. It will reduce the case fatality and case specific mortality thus decreases the burden of disease.

### CONCLUSIONS :

Breast cancer incidence and prevalence in Pakistan highest among all Asian countries. Due to low health care budget, family history of breast cancer, lack of knowledge about screening programs, lack of knowledge about disease development are major contributing factors. This increases the disease burden and case specific mortality in Pakistan.

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