

# Breast Cancer Beyond Gender: Addressing the Reality of the Disease in Men

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# Personal Perspective

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To address the realities of breast cancer in men, it is essential to recognize how the lack of research directly impacts diagnosis, treatment options, and overall quality of life within the male population. The limited scientific attention given to male breast cancer not only delays detection but also results in treatment strategies that are often adapted from female-centered studies. This gap highlights the urgent need for more inclusive research that accurately reflects the biological and psychosocial experiences of men, ultimately improving clinical outcomes and patient care.

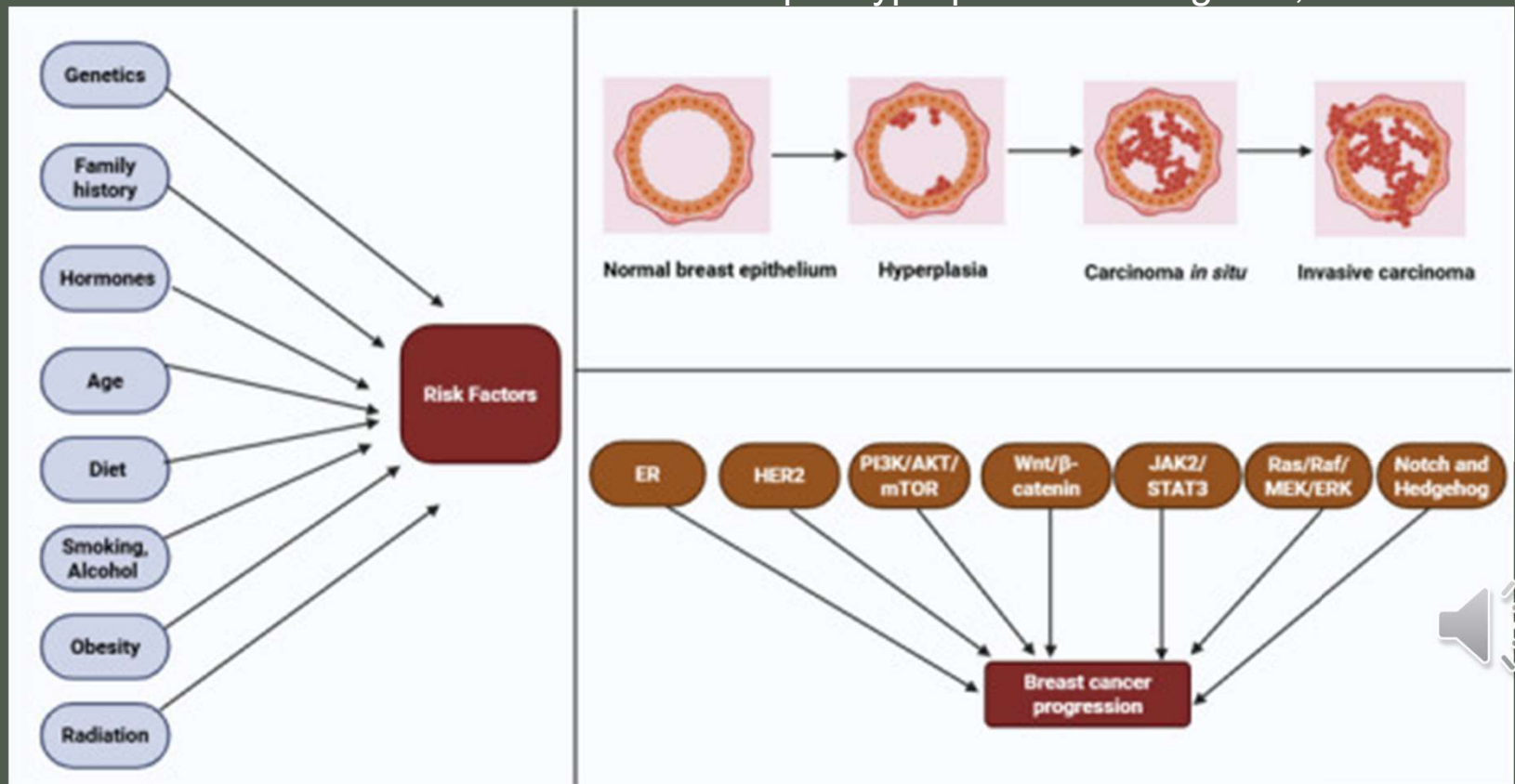


# Introduction

- Breast cancer is a disease that affects women, though it is important to recognize that it also occurs in men at much lower rates. Male breast cancer (MBC) makes up about 0.5-1% of all breast cancer cases worldwide, with an incidence of roughly 1.3 cases per 100,000 men each year (Sah et al., 2025).
- Men diagnosed at an older age
- Lack of screen routine and delayed diagnosis due to understudy involvement



**Figure 1: Multistep Pathogenesis of Breast Cancer** This schematic illustrates the transition from healthy tissue to invasive disease. It highlights how **risk factors** trigger **genetic mutations**, which then fuel specific **signaling pathways** (like ER and PI3K/AKT). This molecular dysregulation drives the physical transformation of the breast tissue from simple hyperplasia to malignant, invasive carcinoma.



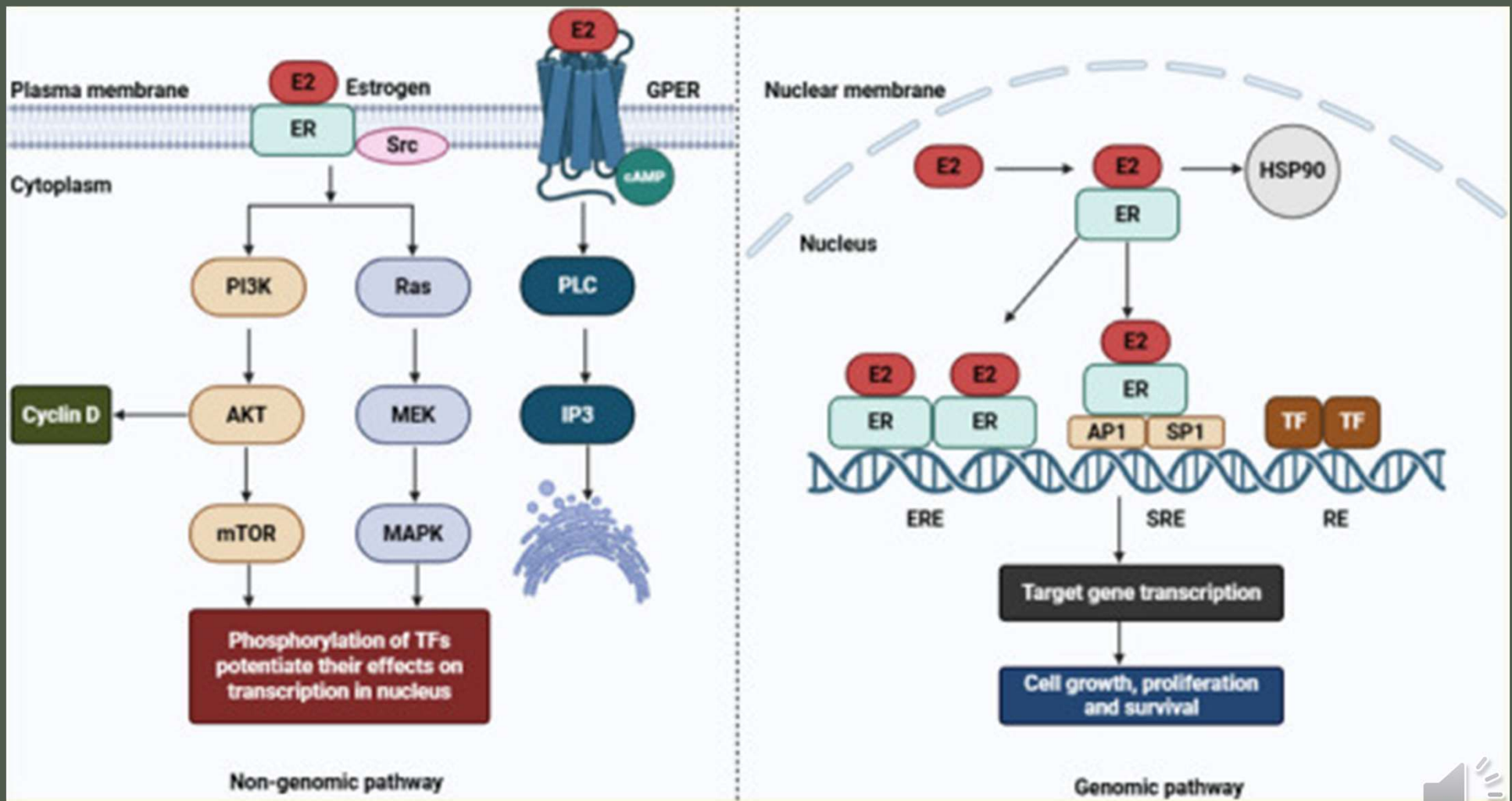


Figure 2, Samad et al., 2025



# Risk Factors of MBC

02

01

Hormonal imbalance plays a central role in disease development. Conditions that increase estrogen levels or decrease testosterone—such as Klinefelter syndrome, obesity, liver disease, and hypogonadism—significantly elevate risk (Jamil et al., 2025).

02

Lifestyle and environmental factors, including chronic alcohol consumption, physical inactivity, and exposure to ionizing radiation, further contribute to disease susceptibility (Sah et al., 2025).

03

Men do not undergo routine breast cancer screening, which contributes to delayed detection and more advanced disease at diagnosis (Sah et al., 2025). This lack of screening, combined with limited awareness, significantly impacts clinical outcomes.



### Risk factors for male breast cancer

Risk factor	Description
Age	Increased risk with advancing age. The median age for male breast cancer diagnosis varies by ethnicity and race. Specifically, male breast cancer diagnosis median age was 70, 66, 65, and 64 for non-Hispanic white, non-Hispanic Pacific and Asian Islander, non-Hispanic black, and Hispanic men, respectively.
Hormonal imbalance	Higher levels of estrogen relative to androgen hormones can occur due to obesity, testicular atrophy, liver disease, or Klinefelter syndrome.
Radiation exposure	Increased risk in men treated with radiation therapy to the chest area, e.g., for lymphoma.
Family history/ Genetics	About 20% have a first-degree relative with breast cancer. Associated with BRCA2 mutations (accounts for ~10% of cases) and possibly CHEK2, PTEN, and PALB2 mutations.

Risk factor	Description
Klinefelter syndrome	This is a rare genetic condition with an extra X chromosome, leading to hormonal imbalances and increased risk.
Obesity	High body mass index (BMI) is associated with 35% higher risk compared to low BMI.
Gynecomastia	The presence of excess breast tissue is associated with a 10-fold increased risk, independent of obesity and Klinefelter syndrome.
Alcohol consumption	Increased risk with higher alcohol intake.
Estrogen treatment	Prostate cancer treatment may increase breast cancer risk.



# 03

## Surgical Management, Treatment Strategies & Limitations

### Surgery

- Mastectomy

### Adjuvant & Non-Adjuvant Therapies

- Radiation Therapy
- Endocrine Therapy
- Chemotherapy

### Limitation

- Clinical trials and research



# 04

## Quality of Life for Male with MBC

### Psychological Stress and Stigma

- Stigma and Isolation
- Psychological Distress
- Lack of tailored support

### Physical and Sexual Health

- Body Image
- Sexual Health Issue

### Clinical Challenges

- Delayed Detection



# Prognosis on MBC

- The clinical outcome for MBC is heavily dependent on how early the disease is identified.
- MBC has a distinct profile, with over 85-90% of cases as hormone receptor-positive
- It is essential to address diagnostic delays and improve treatment to increase overall life expectancy



# Conclusion

→ The high prevalence of estrogen-receptor-positive tumors and BRCA2 mutations underscores the importance of genetic screening as well as tailored therapies.

→ Improvement of male breast cancer necessitates two approaches: the initiation of male-centered clinical trials and the implementation of better supportive care that addresses the emotional burden of breast cancer.



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