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## FREQUENCY AND RISK FACTORS OF BREAST CANCER AMONG YOUNG AND MIDDLE-AGED WOMEN.

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### ABSTRACT

**BACKGROUND:** Breast cancer is the leading cause of cancer related deaths worldwide and becoming more common in Pakistan. Trend is now shifting to young and middle-aged women. Data is limited in this regard from Pakistan. That is why this study aims to determine the prevalence and risk factors of breast cancer among young and middle-aged women.

**METHODS:** A prospective observational study was conducted in the department of Gynecology & Pathology for a period of 8 months from March 2024 to October 2024 at Peoples University of Medical and Health Science for women, Shaheed Benazirabad. All the suspected women of young age 18 to 35 years and middle age  $\geq 36$  to 55 years groups were included for breast cancer frequency and associated risk factors. **RESULTS:** A total of 213 patients were included for final analysis. Significant proportion of patients with age more than 35 years middle age were diagnosed with carcinoma of breast. Patients who had late marriage  $30.43 \pm 7.02$  years, patients belong to middle socioeconomic background  $n = 164$ , 76.99%, patients with no children  $n = 8$ , 3.75%, patients with positive family history of breast cancer  $n = 32$ , 15.02%, and patients who had early menstruation were more likely to have breast cancer,  $p$  value  $< 0.05$ . **CONCLUSION:** Breast cancer is common among middle aged women but young women also show an increase in its frequency. Late marriages, early menstruation, and positive family history of breast cancer are the leading causes of carcinoma of breast observed in our study

**KEYWORDS:** Breast cancer, Young and middle-aged women, Pakistan

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## INTRODUCTION:

Cancer is becoming more common as the urbanization is increased and people are adopting sedentary lifestyle over healthy choices along with increased consumption of unhealthy food such as junk food, pre-prepared meals, and processed food<sup>1, 2</sup>. Also, more stressful life and lack of exercise plays a pivotal role leading to certain diseases including cancers. According to recent statistics, 21,958,310 new cancer cases and 609,820 cancer deaths are projected to occur in the United States<sup>3</sup>. Among all cancers, breast cancer in women is the leading diagnosis and according to the World Health Organization WHO statistics, 1 in 12 women are diagnosed with breast cancer in their lifetime<sup>4</sup> and hold top spot in Asia<sup>5</sup>. In Pakistan, a study conducted by Zaheer S and colleagues has observed increase in the prevalence of breast cancer up to 5.4 folds and significantly higher prevalence rates observed in middle aged group females<sup>6</sup>. Breast cancer is becoming common in young women having age less than 40 years. A recent data also shows increase trend in young females diagnosed with breast cancer<sup>7</sup>. A recently published study from Pakistan has shown that breast cancer is the leading cause of cancer related deaths. Its prevalence is around 28.7% with 11.7% mortality rate of all new cases<sup>8</sup>. Another study claims that 1 in 9 Pakistani women suffer from breast cancer at some stage of their life<sup>9</sup>. And data is also declining towards young women with a new cases of breast cancer. The reason behind this change is due to genetic mutation, late first pregnancy, not having children, environmental exposure, change in hormone levels due to lifestyle & dietary habits, and occurrence of early menopause<sup>10, 11</sup>. To reduce the burden of breast cancer among young and middle-aged women, timely measures should be taken by means of providing awareness

regarding risk factors predisposing women to this condition. This can only be achieved when the scientific data is available. That is why, this study aims to determine the frequency and risk factors of breast cancer among young and middle-aged women.

## PATIENTS AND METHODOLOGY:

This was a prospective hospital-based study conducted through a non-probability convenience sampling technique in the Department of Gynecology and in collaboration with the Department of Pathology, Peoples University of Medical and Health science for women PUMHS, Shaheed Benazirabad. The study was completed in 8 months from March 2024 to October 2024. The sample size was calculated through a Raosoft software and an estimated 213 women were selected for inclusion in this study. The inclusion criteria for this study was patients belongs to young  $\geq 18$  years to 35 years and middle age  $\geq 36$  to 55 years groups and those who consent to participate. Exclusion criteria for this study was old age group women  $\geq 55$  years, previous history of treated breast cancer, patients with concomitant other malignancy, and patients with end-stage liver, kidney, heart, or lung disease. The study was started after taking approval from the hospital's ethical review committee. All the patients were briefed regarding core purpose of this study and potential benefits one can get after its publication. The diagnosis of breast cancer was made based on the clinical manifestations such as presence of breast pain and lump on breast and confirmed through radiological and pathological parameters such as mammography and biopsy findings. Women with positive breast cancers were further screened for types of breast cancer. All the patients were evaluated and managed based on the latest breast cancer guidelines<sup>12</sup>. Confirmatory patients then sent for

Oncologist opinion and treatment. Data was collected in a pre-designed questionnaire in which women's baseline and clinical characteristics were entered like age, age group young or middle, area of residence, social class, education status, marital status, number of marriages in case of more than one, number of children, age at which they had first children, and addiction habits were asked. Clinical data includes, positive family history of breast cancer, history of taking any hormonal replacement therapy, history of hysterectomy or oophorectomy, age at which menopause occurred, premature ovarian failure, and type of breast cancer. Statistical package for the social sciences SPSS version 26.0 was used for data entry and analysis. Frequency and percentages were computed for descriptive quantitative variables while mean $\pm$ SD was calculated for continuous variables. To explore the association between baseline and clinical factors as a risk factor for breast cancer, a chi-square and independent *t*-tests were applied and a *p* value of  $<0.05$  was considered statistically significant.

## RESULTS

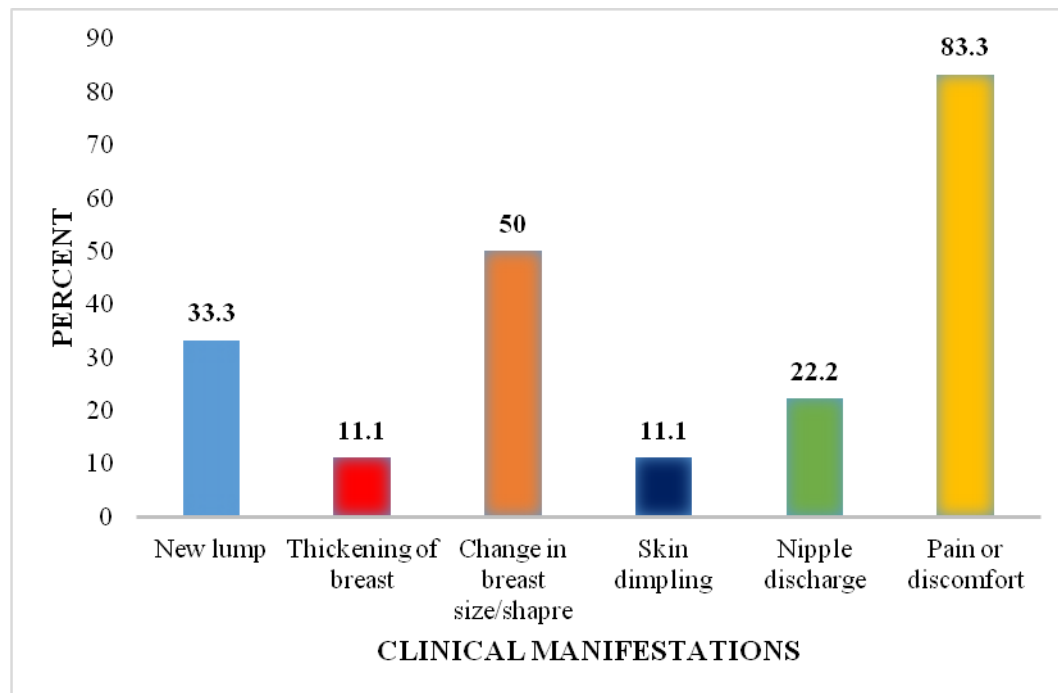
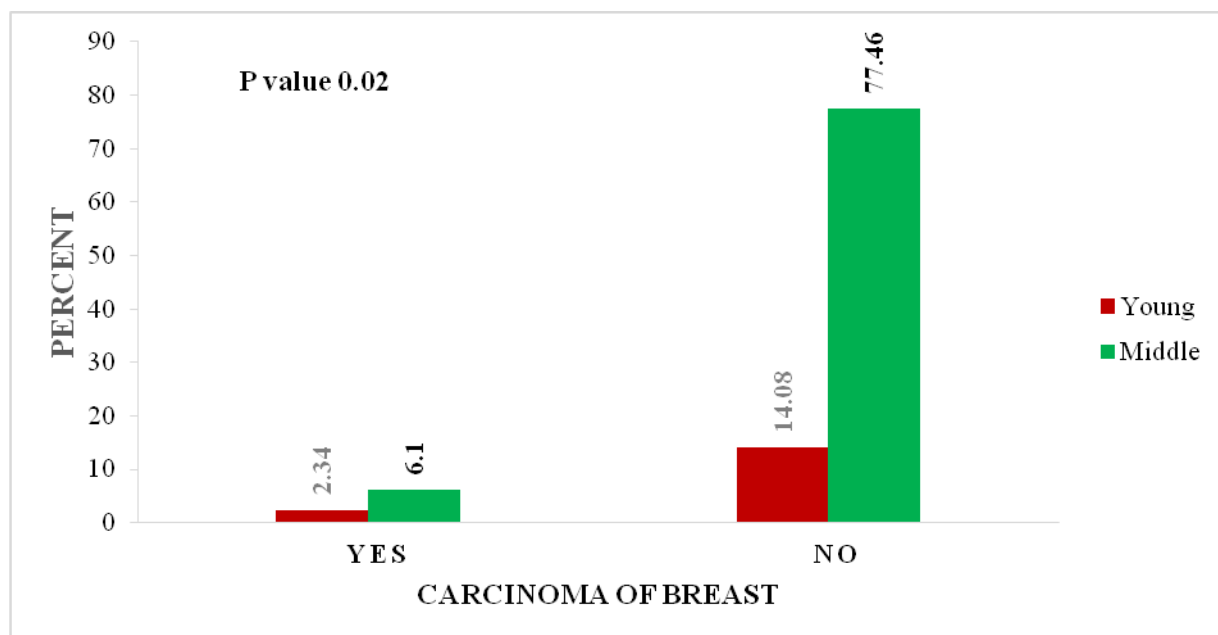
A total of 213 patients were included for final analysis those who were suspected for carcinoma of breast. The overall mean age was 45.99 $\pm$ 10.22 years and most of the women *n* = 83.09% belongs to middle age group  $\geq 36$  to 55 years. Most of the study participants belongs to middle socio-economic background *n* = 175, 82.15%, and with no education *n* = 76, 35.68%, married *n* = 199, 93.42%. The overall prevalence of breast cancer among suspected women was 8.45% *n* = 18. Table 1.

Graph 1 shows most commonly observed clinical manifestations in women diagnosed with breast cancer. The most prevalence symptoms were breast pain or discomfort observed in 83.3% of the women followed by presence of new lump *n* = 6, 33.3%, and nipple discharge *n* = 4, 22.2%.

Significant proportion of patients with age more than 35 years middle age group were diagnosed with carcinoma of breast as compared to females having age  $<35$  years young age group. Considering the risk factors associated with breast cancer among young and middle age group women, patients who had late marriage mean age of marriage 30.43 $\pm$ 7.02 years, patients belong to middle socioeconomic background *n* = 164, 76.99%, patients with no children *n* = 8, 3.75%, patients with positive family history of breast cancer *n* = 32, 15.02%, and patients who had early menstruation were more likely to have breast cancer, *p* value  $<0.05$ . Graph 2 and Table 2.

**Table 1: Baseline and clinical parameters of study participants N = 213**

Baseline parameters	Mean $\pm$ SD	$\beta$
Age - years	45.99 $\pm$ 10.22	
	Frequency	Percent
<b>Age groups</b>		
Young $\geq 18$ - 35	36	16.9
Middle $\geq 36$ to 55	177	83.09
<b>Area of residence</b>		
Rural	84	39.43
Urban	129	60.56
<b>Socio-economic status</b>		
Lower	24	11.26
Middle	175	82.15
Upper	14	6.57
<b>Education level</b>		
No education	76	35.68
<Primary	35	16.43
Secondary	74	34.74
$\geq$ Graduate	28	13.14
<b>Marital status</b>		
Single	9	4.22
Married	199	93.42
Widow	5	2.34
<b>Presence of breast cancer</b>		
Yes	18	8.45
No	195	91.54

**Graph 1: Clinical manifestations of patients diagnosed with breast carcinoma N = 18****Graph 2: Association of breast cancer occurrence between age groups N = 213****Table 2: Risk factors associated with carcinoma of breast between age groups N = 213**

Risk factors	Young women n = 18	Middle aged women n = 195	p value
Age - years	37.10±9.22	51.34±6.83	0.001*
Age at marriage - years	23.13±8.61	30.43±7.02	
<b>Marital status</b>			
Single	6 2.81	3 1.40	0.09

Married	11 5.16	188 88.26	
Widow	1 0.46	4 1.87	
<b>Socio-economic status</b>			
Lower	5 2.34	19 8.92	
Middle	11 5.16	164 76.99	0.01*
Upper	2 0.93	12 5.63	
<b>Number of children</b>			
No child	4 1.87	8 3.75	
1 child	12 5.63	13 6.10	0.03*
≥2 children	2 0.93	174 81.69	
<b>Positive family history of Breast cancer</b>			
Yes	5 2.34	32 15.02	0.001*
No	13 6.10	163 76.62	
<b>Early menstruation &lt;12 years</b>			
Yes	3 1.40	14 6.57	
No	15 7.04	181 84.97	0.04*
*p value <0.05 considered statistically significant			

## DISCUSSION

Breast cancer is now becoming the leading cause of morbidity, disability, and mortality among young and middle-aged women. Pakistan is among the most prevalent countries suffering from this disease. Its prevalence is continue on the rise and affecting young and middle aged females<sup>13, 14</sup>. Zhu JW and colleagues<sup>10</sup> have observed in their study that breast cancer is the second most common cause of death among young women having age less than 40 years. The overall mean age of occurring breast cancer in Pakistan is 51 years but in America it is 61 years, a 10 years difference<sup>15</sup>. This is an alarming situation and shows how early the breast cancer is diagnosing in Pakistani women. But both of the previously published studies included all age groups women in contrast to our study in which we have included only women having age between 18 years to 55 years, comprising of young and middle age population. In our study the prevalence of breast cancer among young women age 18 years to 35 years was 2.34% n = 05 and among middle age women age 36 years to 55 years was 6.1% n = 13. The same findings were observed in a previously published study where authors have stated that breast cancer

below the age of 40 is less common and only affecting 4% to 6% of the women<sup>16</sup>. In our study young women diagnosed with breast cancer at the age of 37.10±9.22 years while middle age group women diagnosed with breast cancer at the age of 51.34±6.83 years. Recently published studies also favors findings of our study and shows that young women diagnosed with breast cancer had mean age was 34.7 years<sup>17</sup> and 36 years<sup>18</sup>. Other studies including middle age group women showed slightly higher mean age at the time of diagnosis was that 56 years<sup>19</sup>. The differences and similarities in mean age at the time of diagnosis could be due to multiple reasons such as appearance of clinical signs and symptoms making women cautious and forced them to seek medical attention, awareness regarding breast cancer, lifestyle, addiction habits, and genetic predisposition<sup>20</sup>.

The most common clinical manifestation of our patients was pain of discomfort in the breast 83.3%, n = 15 followed by presence of new lump 33.3%, n = 6/18 and least common was presence of thickening of breast and skin dimpling 11.1%, n = 2. A study conducted by Koo MM and colleagues<sup>21</sup> have shown breast lump was the most common symptoms observed in

women with breast cancer 83%. While another recently published data shows nipple discharge was the most common presenting symptoms<sup>22</sup>. The same finding, that is, presence of breast lump was observed in 96% of the women diagnosed with breast cancer in a tertiary care hospital. Sargodha, Pakistan<sup>23</sup>. Clinical manifestations may vary from person to person depending upon type of cancer, early or late presentation, and age of a patient. That is why, every suspected woman should be screened for breast cancer as early as possible.

Considering the risk factors associated with breast cancer among young and middle age group women, patients belong to middle socioeconomic background n = 164, 76.99%, patients with no children n = 8, 3.75%, patients with positive family history of breast cancer n = 32, 15.02%, and patients who had early menstruation were more likely to have breast cancer, p value <0.05. our study's findings are in consistence with the previously published multiple studies from Iran<sup>24</sup>, China<sup>25</sup>, America<sup>26</sup>, and even in Pakistan<sup>27</sup>. The risk factors are varied among different population. One should consider most common risk factors of breast cancer in their respective areas.

that is why, larger scale should be conducted in Pakistan in which all parts of it should be covered so that we can see the most common risk factors leading to carcinoma of breast.

**Study limitations:** This study has certain limitations that should be addressed in future studies. First one is, this study was a single centered study and included patients residing in the catchment area of Shaheed Benazirabad. Smaller sample size is also one of the important study's limitations. Furthermore, other risk factors of breast cancer such as genetic diagnosis cannot be performed due to financial constrain. Lastly, type of cancer should also be evaluated to further explore risk factors with type and severity of carcinoma of breast.

## CONCLUSION

Breast cancer is common among middle aged women but young women also show an increase in its frequency. Observed risk factors of breast cancer from our study should be address in every suspected woman. Late marriages, early menstruation, and positive family history of breast cancer are the leading causes of carcinoma of breast observed in our study.

**ETHICS APPROVAL:** The ERC gave ethical review approval.

**CONSENT TO PARTICIPATE:** written and verbal consent was taken from subjects and next of kin.

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## AUTHORS' CONTRIBUTIONS:

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

**CONFLICT OF INTEREST:** No competing interest declared

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