

# RISK FACTORS OF BREAST CANCER IN FEMALE AT IRNUM CANCER HOSPITAL, PESHAWAR

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## ABSTRACT

**Objectives:** To determine common risk factors that leads to breast cancer in females.

**Material and Methods:** A case control study was conducted at IRNUM Cancer Hospital Peshawar Khyber Pakhtunkhwa, Pakistan from May 2016 to December 2016. About 280 married and unmarried females between the age group of 20 to 70 years were included in the study.

**Results:** Mean age (Cases Group) was 45 years with  $\pm 2.16$  SD. Where as mean age in (Control Group) was 47 years with  $\pm 2.79$  SD. In (Cases Group) (18%) patients had menarche age  $> 13$  years. Where as in (Control Group) (6%) patients had menarche age  $> 13$  years. In (Cases Group) (35%) patients didn't give breast feeding. Where as in (Control Group) (15%) patients didn't give breast feeding. In (Cases Group) (20%) patients had used contraceptive pills. Where as in (Control Group) (8%) patients had used contraceptive pills. In (Cases Group) (3%) patients had smoke. Where as in (Control Group) all the patients were non smokers. In (Cases Group) (37%) patients had BMI  $> 28$ . Where as in (Control Group) (18%) patients had BMI  $> 28$ .

**Conclusion:** Breast feeding and BMI were the highest and the most common risk factors of breast cancer.

**Key Words:** BMI, Contraceptive pills, Breast cancer.

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## INTRODUCTION

Breast cancer is regarded as one of the common cancer in women having Psycho-logical and social impacts. It affects self-esteem to such extent that is much greater than any other cancer. Breast cancer arises from breast tissue, mostly from the inner endothelium of milk ducts. World wide, breast cancer is the second leading cause of mortality due to cancers<sup>2</sup>. In 2008 deaths due to breast cancer were 458,503 which constituted 13.7% of cancer deaths in women<sup>3</sup>. breast cancer, Colorectal, lung, stomach and liver cancers, contributes half of the cancer deaths worldwide<sup>4</sup>.

Prognosis and survival rates of breast cancers are high in western world<sup>5</sup>. Developing countries burden of health care due to breast cancer is tremendous. It

is stated that in coming years, these countries would account for majority of new breast cancer patients that will be diagnosed globally<sup>6</sup>. In India and Iran breast cancer is the second most common female cancer<sup>7</sup>. Breast cancer incidence in Pakistan is about 2.5 times that in India and Iran which is highest in Asia<sup>8</sup>. Approximately one in every nine Pakistani women is likely to suffer from breast cancer which is one of the highest incidence rates. Pakistani women show an incidence rate of 50/100,000 whereas in neighbouring country India with similar sociocultural background, the incidence rate is 19/100,000<sup>9</sup>. According to Karachi tumour Registry and AFIP tumour Registry, breast cancer is the most common cancer of females in southern and northern Pakistan.

Hereditary factors is one of the leading cause of breast cancer. Risk of breast cancer is increased in women if her mother or sister had breast cancer. It is more common in nulliparous and breast feeding appears to be protective. In western countries it occurs more commonly in women belonging to higher socio-economic class while women with low socioeconomic class present with late stage of diseases<sup>11</sup>.

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**MATERIAL AND METHODS**

This case control study was conducted at IRNUM Cancer Hospital, Peshawar, Pakistan from May 2016 to December 2016. Both married and unmarried females between age group of 20 to 70 years were included in the study. Sample size was 280, using 27.8% proportion of oral contraceptive in control group, 18.4% proportion in breast cancer group<sup>15</sup>, odds ratio of 0.59, 95% confidence level and 80% power of test under WHO software for sample size determination. All females between ages of 20 to 70 years diagnosed as having breast cancer visiting hospital were taken as cases. Females of same age group having any other cancer or chronic disease which was confirmed on history were taken as controls. Study was conducted after approval is obtained from ethical board of IRNUM hospital. Complete history from every person was taken. The purpose of study was explained to cases and controls included in study after taking informed written consent. Data was collected on a structured questionnaire and analyzed using SPSS version 20.

**RESULTS**

Age distribution among cases and control was analyzed as in 280 patients of (Cases Group) 62(22%) patients were in age range 31-40 years, 157(56%) patients were in age range 41-50 years, 39(14%) patients were in age range 51-60 years and 22(8%) patients were above 60 years of age. Mean age was 45 years with SD  $\pm$  2.16. Where as in 280 patients of (Control Group) 56(20%) patients were in age range 31-40 years, 154(55%) patients were in age range 41-50 years, 42(15%) patients were in age range 51-60 years and 28(10%) patients were above 60 years of age. Mean age was 47 years with SD  $\pm$  2.79.

Status of Menarche among cases and control was analyzed as in 280 patients of (Cases Group) 230(82%) patients had menarche age < 13 years while 50(18%) patients had menarche age > 13 years. Mean age of menarche was 15 years  $\pm$  2.01. Where as in 280 patients of (Control Group) 263(94%) patients had menarche age < 13 years and 17(6%) patients had menarche age > 13 years. Mean age of menarche was 10 years  $\pm$  1.88.

Our study showed that mean age in (Cases Group) was 45 years with SD  $\pm$  2.16 and mean age in (Control Group) was 47 years with SD  $\pm$  2.79. In (Cases Group) (18%) patients had menarche age > 13 years. Where as in (Control Group) (6%) patients had menarche age > 13 years. In (Cases Group) (22%) patients had age at first birth > 25 years. Where as in

**Table 1: Status of age at first birth (n=560)**

Age at first birth	Cases	Control
< 25 years	218(78%)	252(90%)
>25 years	62(22%)	28(10%)
Total	280(100%)	280(100%)
Mean and SD	25 years $\pm$ 3.14	22 years $\pm$ 2.46

Chi square test was applied in which P value was 0.003

**Table 2: Status of breast feeding (n=560)**

Breast Feeding	Cases	Control
Yes	182(65%)	238(85%)
No	98(35%)	42(15%)
Total	280(100%)	280(100%)

Chi square test was applied in which P value was 0.001

**Table 3: Status of smoking (N=560)**

Smoking	Cases	Control
Not smoking	272(97%)	280(100%)
Smoking	8(3%)	0
Total	280(100%)	280(100%)

Chi square test was applied in which P value was 0.003

**Table 4: Status of body mass index (N=560)**

BMI	Cases	Control
<28	176(63%)	230(82%)
>28	104(37%)	50(18%)
Total	280(100%)	280(100%)
Mean and SD	28 $\pm$ 3.77	22 $\pm$ 2.14

Chi square test was applied in which P value was 0.001

(Control Group) (10%) patients had age at first birth > 25 years. In (Cases Group) (35%) patients didn't give breast feeding. Where as in (Control Group) (15%) patients didn't give breast feeding. In (Cases Group) (20%) patients had used contraceptive pills. Where as in (Control Group) (8%) patients had used contraceptive pills. In (Cases Group) 3% patients had smoke. Where as in (Control Group) all the patients were non-smokers. In (Cases Group) (37%) patients had BMI > 28. Where as in (Control Group) 18% patients had BMI > 28.

Status of age at first birth among cases and control was analyzed as in 280 patients as shown in Table 1. Status of breast feeding among cases and control was analyzed as in 280 patients as shown in Table 2. Status of Contraceptive Pills among cases and control

was analyzed and as shown in Table 3. Status of BMI among cases and control was analyzed and is shown in Table 4.

### DISCUSSION

A study about risk factors of breast cancer conducted in Turkey showed increase prevalence of breast cancer in patients having age above 35 years during birth of first child, history of induced abortion, age above 50 years and BMI greater than 25.12. Same risk factors were noted in our study.

Shamsi et al in their study about the risk factors of breast cancer reported that family history, menopause at older age and marital status were associated with breast cancer while multi parity and users of vitamin D were less likely to develop breast cancer<sup>14</sup>.

Breast cancer incidence increases after menopause if patient develop obesity due to hormonal changes. In present study, 35 patients were found overweight and 24 patients were obese. Many studies showed that increase body mass index is associated with greater risk of developing breast cancer<sup>15,16</sup>.

Age is another risk factor for developing breast cancer. Breast cancer risk increases with age. McPherson et al stated that among one thousand women of age fifty two developed breast cancer<sup>16</sup>. Vogel et al stated that women having age of above 50 years and have benign breast condition i.e atypical ductal or lobular hyperplasia are more likely to develop breast cancer<sup>17</sup>.

Some studies highlighted that risk of breast cancer is decreased with spontaneous abortion if compared to induced but other showed no association of these factors with breast cancer<sup>18,19,20</sup>. Tavani A et al in their study also showed that patients having history spontaneous abortion were having no risk of breast cancer but risk slightly increased with repeated abortions. This study also showed that spontaneous miscarriages was associated with decreased risk of breast cancer if women is menstruating while increases if women is in post menopause phase<sup>21</sup>. Mabuchi K et al found increased risk of breast cancer in patients having a history of induced abortion<sup>22</sup>. These findings agrees with our results.

Many studies suggested that women using oral contraceptive pills and hormone replacement therapy (HRT) are at increased risk of developing breast cancer<sup>23,24</sup>. Other studies reported decrease risk of breast cancer with HRT<sup>25,26</sup>. Our study also showed increase prevalence of breast cancer in women using either of the mentioned drugs.

Velentgas P et al in their study stated that women having first child above the age of 30 years were at in-

creased risk to develop breast cancer<sup>27</sup>. In contrast to this our study showed that age above 35 years at first child are at increased risk.

Most important factors that decreases breast cancer risk is breast feeding as documented in a study by Lipworth<sup>28</sup>. Coldtz S et al also showed a decreased risk of breast cancer in Turkish women that regularly breast feed their child<sup>29</sup>. Results of our study also demonstrated protective role of breast feeding against breast cancer.

### CONCLUSION

Oral contraceptive use, age above 35 years and increase BMI were the highest and the most common risk factors of breast cancer.

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## Risk factors of breast cancer in female at IRNUM cancer hospital, Peshawar

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### **AUTHOR'S CONTRIBUTION**

Following authors have made substantial contributions to the manuscript as under:

**Mustafa A:** Planned study and collected data.

**Khalil KR:** Statistical analysis.

**Ullah NB:** Data collection.

**Iftikhar B:** Final compilation and formatting and referencing.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.