

## Prevalence of risk factors in breast cancer in female patients at a rural hospital

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### ABSTRACT

**Background:** Breast cancer is a major health concern in India, with an estimated 266,000 new cases and 74,000 deaths annually. The prevalence of risk factors for breast cancer in India is of great concern, as it is one of the most common types of cancer among women in the country. The present study aimed to assess several established risk factors for breast cancer, including age, family history, and lifestyle factors such as diet and physical activity. In India, the average age at diagnosis for breast cancer is typically 10-15 years younger than in Western countries, which may be due to differences in reproductive and hormonal factors. **Material and Methods:** Present study was prospective and retrospective, conducted in patients with malignancy, lesions diagnosed on the basis of histopathological examination (TNM staging system) were considered as cases. **Results:** In the present study, The mean age of the study subjects was  $51.20 \pm 10.8$  years. The majority of the participant was of >50 years of age (n=213, 42.6%) followed by 41-50 years (n=195, 39%) and <40 years (n=92, 18.4%). The mean weight of the patients was  $63.34 \pm 8.12$  kg. Most of the subjects had 57-68 kg of weight (n=138, 39.6%) followed by 23.4% (n=117), 15.6% (n=78), 10.8% (n=54), and 10.6% (n=53) of the subjects belonged to 49-58 kg, 69-78 kg, >78kg and 38-48 kg weight category respectively. The mean age at menarche in patients was found to be  $12.47 \pm 1.42$  years. In 52.4% (n=262) of the patients, the age at menarche was 10-12 years. Whereas, in 46% (n=230), 0.8% (n=4), and 0.8% (n=4) of patients it was 13-14 years, <10 years, and >14 years respectively. The mean age of the patients at first childbirth was  $22.35 \pm 4.89$  years. Most of the patients had their first child at 20-24 years of age (49.4%, n=247) followed by 34.8% (n=174), 11.6% (n=58), and 4.2% (n=21) of patients it was at <20 years, 25-29 years,  $\geq 30$  years of age respectively. The mean number of pregnancies in study subjects was  $2.67 \pm 4.18$ . The majority of patients had 1-2 pregnancies (49.6%, n=248) followed by 35.6% (n=178), 9.4% (n=47), and 5.4% (n=27) of the patients had 3-4, 0, and >4 pregnancies. In 79.4% (n=397) of patients, the duration of breastfeeding was >6 months whereas in 20.6% (n=103) patients the duration of breastfeeding was 4-6 months. Among the study subjects, 3.4% (n=17) of the patients had a family history of breast cancer whereas, it was absent in the majority of the subjects (96.6%, n=483). A history of oral contraceptive use was noted in only 4.4% (n=22) of patients, only 0.6% of the patients had a history of hormone replacement therapy. The majority of study subjects were housewives (60.4%, n=302) whereas, the occupation of 12.6% (n=63), 2.6% (n=13), 0.4% (n=2), 3.8% (n=19), and 20.2% (n=101) of patients were service, retired, student, self-employed, and other respectively. 51% (n=255) of the subject had premenopausal status whereas, 49% (n=245) of the subjects were with postmenopausal status. Modifiable risk factors were observed in 10% (n=50) of the patients including obesity, smoking, and use of other drugs in 5% (n=25), 1% (n=5), and 4% (n=20) of patients respectively. **Conclusion:** The common modifiable risk factors commonly attributed to breast cancer were not correlating and trends were observed to vary in this rural setup.

**Keywords: TNM staging(AJCC), Breastfeeding, Menopause,HRT, Contraceptive**

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## INTRODUCTION

Breast cancer is a significant global health problem, with 2.09 million cases and 627,000 deaths annually according to the World Health Organization (WHO). It is the most common type of malignant neoplasm among females worldwide, including India, and accounts for 14% of all cancers in women. Breast cancer can occur at any age, but in India, the incidence rates begin to rise in the early thirties and peak at age 50-64. Mammography is a commonly used screening method for detecting breast cancer, and other technologies such as MRI are also used. Risk factors for developing breast cancer include sex, aging, family history, gene mutations, lifestyle choices, overweight, high fat/protein diet, alcohol consumption, smoking, exposure to estrogen, use of certain contraceptive drugs, stress and anxiety, family history of breast cancer, radiation therapy to the chest, pregnancy, and breastfeeding.

## MATERIAL AND METHODS

This study was conducted at BKL Walawalkar Rural Medical College in Dervan, Ratnagiri, Maharashtra and was approved by the institutional ethical committee. It included 500 patients who presented with breast carcinoma and retrospective data from the last 5 years. Patients with breast lumps that were diagnosed as benign neoplasm or non-neoplastic pathology were excluded from the study. A predesigned form was used to gather information on the patient's age, residence, marital status, and family history of breast cancer, as well as data on tumor size and nodal status obtained from tissue biopsies. Imaging tests such as abdominal ultrasound and chest X-rays, CT scans of the chest and abdomen were performed to rule out metastases. The carcinoma type was determined using the WHO classification, and the TNM staging system of the American Joint Committee on Cancer was used to record the clinical stage of the disease.

## Statistical analysis

Data was entered in the Ms-Excel and then imported into SPSS for analysis. Data were evaluated using SPSS V 1.2.5001 software. Continuous variables were shown in mean±SD whereas, categorical variables were presented in percentage and frequency.

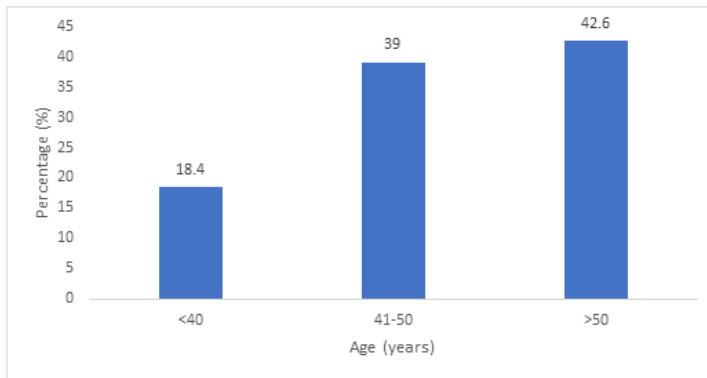
## RESULTS

### Age

The mean age of the study subjects was 51.20±10.8 years. The majority of the participant was of >50 years of age (n=213, 42.6%) followed by 41-50 years (n=195, 39%) and <40 years (n=92, 18.4%). The detailed distribution of subjects according to age categories is depicted in table 1 and figure 1.

**Table 1:Distribution of subjects according to age categories**

Age (years)	Frequency (n)	Percentage (%)
<40	92	18.4
41-50	195	39
>50	213	42.6
Total	500	100



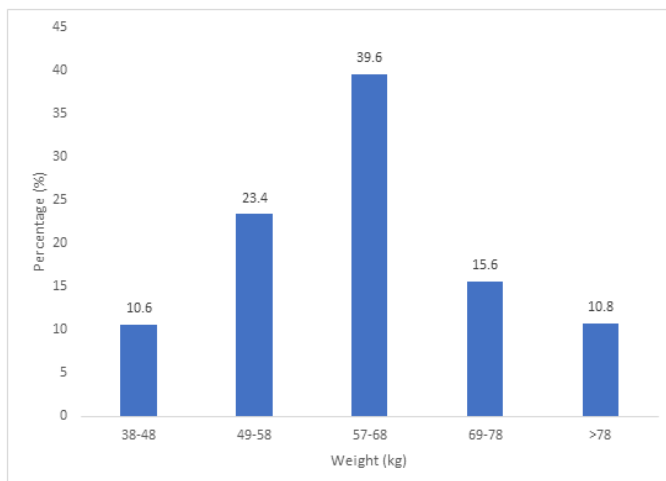
**Figure 1: Distribution of subjects according to age categories**

### Weight

The mean weight of the patients was  $63.34 \pm 8.12$  kg. Most of the subjects had 57-68 kg of weight ( $n=138$ , 39.6%) followed by 23.4% ( $n=117$ ), 15.6% ( $n=78$ ), 10.8% ( $n=54$ ), and 10.6% ( $n=53$ ) of the subjects belonged to 49-58 kg, 69-78 kg, >78kg and 38-48 kg weight category respectively. The detailed distribution of subjects according to weight categories is illustrated in table 2 and figure 2.

**Table 2: Distribution of subjects according to weight categories**

Weight (kg)	Frequency (n)	Percentage (%)
38-48	53	10.6
49-58	117	23.4
57-68	198	39.6
69-78	78	15.6
>78	54	10.8
Total	500	100



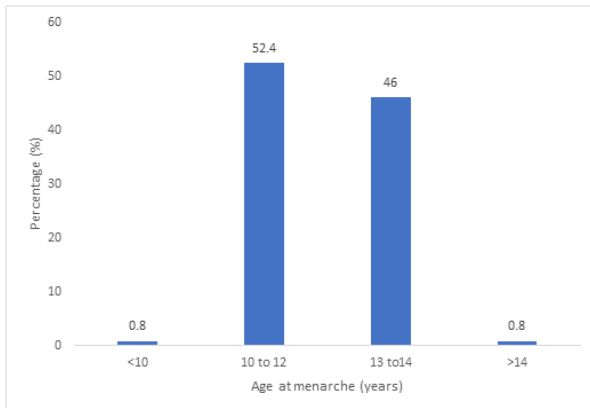
**Figure 2: Distribution of subjects according to weight categories**

### Age at menarche

The mean age at menarche in patients was found to be  $12.47 \pm 1.42$  years. In 52.4% ( $n=262$ ) of the patients, the age at menarche was 10-12 years. Whereas, in 46% ( $n=230$ ), 0.8% ( $n=4$ ), and 0.8% ( $n=4$ ) of patients it was 13-14 years, <10 years, and >14 years respectively. The detailed distribution of subjects according to age at menarche is illustrated in table 3 and figure 3.

**Table 3: Distribution of subjects according to age at menarche**

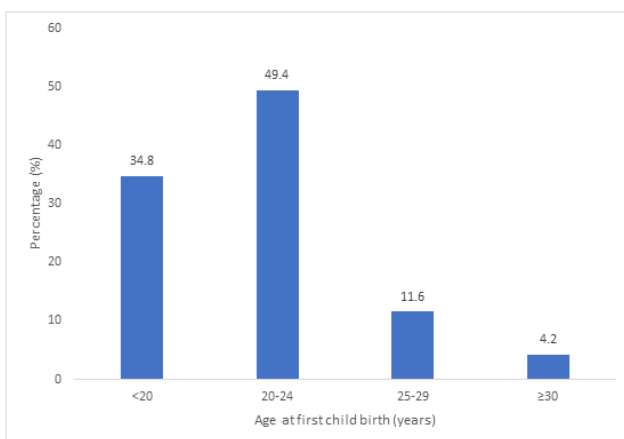
Age at menarche (years)	Frequency (n)	Percentage (%)
<10	4	0.8
10-12	262	52.4
13-14	230	46
>14	4	0.8
Total	500	100

**Figure 3: Distribution of subjects according to age at menarche****Age at first childbirth**

The mean age of the patients at first childbirth was  $22.35 \pm 4.89$  years. Most of the patients had their first child at 20-24 years of age (49.4%, n=247) followed by 34.8% (n=174), 11.6% (n=58), and 4.2% (n=21) of patients it was at <20 years, 25-29 years,  $\geq 30$  years of age respectively. The detailed distribution of subjects according to age at first childbirth is shown in table 4 and figure 4.

**Table 4: Distribution of subjects according to age at first childbirth**

Age at first childbirth (years)	Frequency (n)	Percentage (%)
<20	174	34.8
20-24	247	49.4
25-29	58	11.6
$\geq 30$	21	4.2
Total	500	100

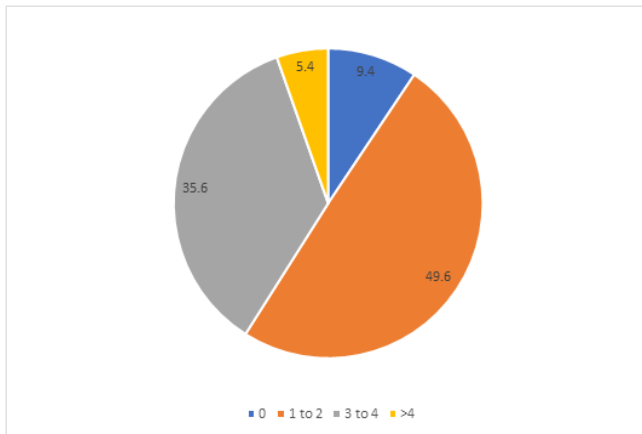
**Figure 4: Distribution of subjects according to age at first childbirth**

**Number of pregnancies**

The mean number of pregnancies in study subjects was  $2.67 \pm 4.18$ . The majority of patients had 1-2 pregnancies (49.6%, n=248) followed by 35.6% (n=178), 9.4% (n=47), and 5.4% (n=27) of the patients had 3-4, 0, and >4 pregnancies. The detailed distribution of subjects according to the number of pregnancies is illustrated in table 5 and figure 5.

**Table 5: Distribution of subjects according to the number of pregnancies**

Number of pregnancies (n)	Frequency (n)	Percentage (%)
0	47	9.4
1-2	248	49.6
3-4	178	35.6
>4	27	5.4
Total	500	100



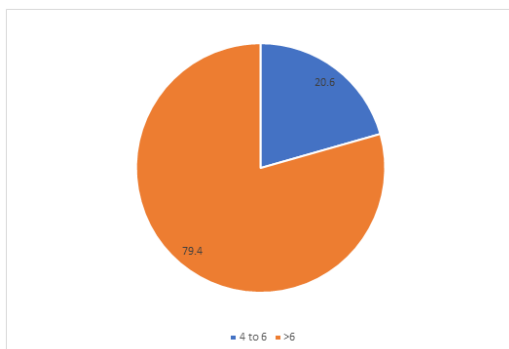
**Figure 5: Distribution of subjects according to the number of pregnancies**

**Duration of breastfeeding**

In 79.4% (n=397) of patients, the duration of breastfeeding was >6 months whereas in 20.6% (n=103) patients the duration of breastfeeding was 4-6 months. The detailed distribution of subjects according to the duration of breastfeeding is depicted in table 6 and figure 6.

**Table 6: Distribution of subjects according to the duration of breastfeeding**

Duration of breastfeeding (months)	Frequency (n)	Percentage (%)
4-6	103	20.6
>6	397	79.4
Total	500	100



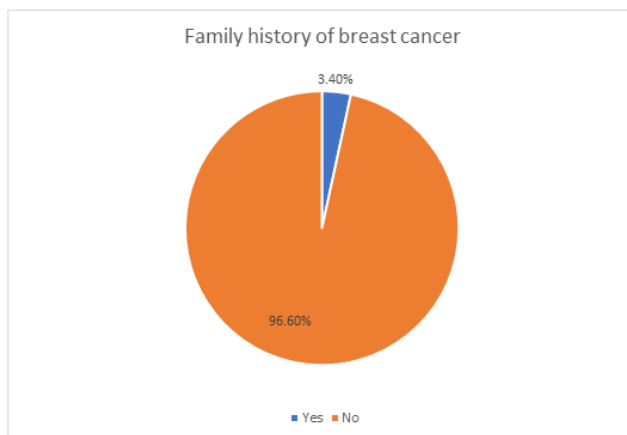
**Figure 6: Distribution of subjects according to the duration of breastfeeding**

### Family history of breast cancer

Among the study subjects, 3.4% (n=17) of the patients had a family history of breast cancer whereas, it was absent in the majority of the subjects (96.6%, n=483). The detailed distribution of subjects according to family history of breast cancer is shown in table 7 and figure 7.

**Table 7: Distribution of subjects according to family history of breast cancer**

Family history of breast cancer	Frequency (n)	Percentage (%)
Yes	17	3.4
No	483	96.6
Total	500	100



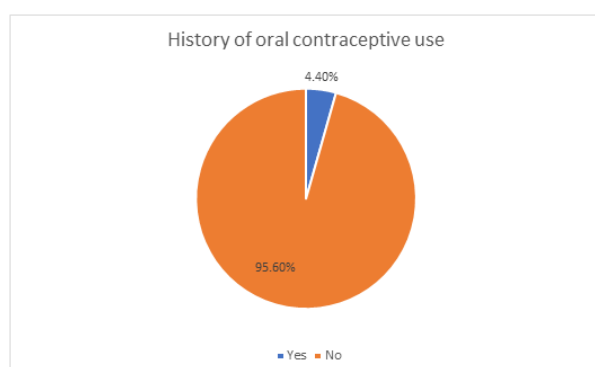
**Figure 7: Distribution of subjects according to family history of breast cancer**

### History of oral contraceptive use

A history of oral contraceptive use was noted in only 4.4% (n=22) of patients. The most common type of oral contraceptive was combined oestrogen and progesterone pills followed by hormone replacement therapy among which one patient used oestrogen-only pills. The detailed distribution of patients according to the history of oral contraceptive use is depicted in table 8 and figure 8.

**Table 8: Distribution of patients according to the history of oral contraceptive use**

History of oral contraceptive use	Frequency (n)	Percentage (%)
Yes	22	4.4
No	478	95.6
Total	500	100

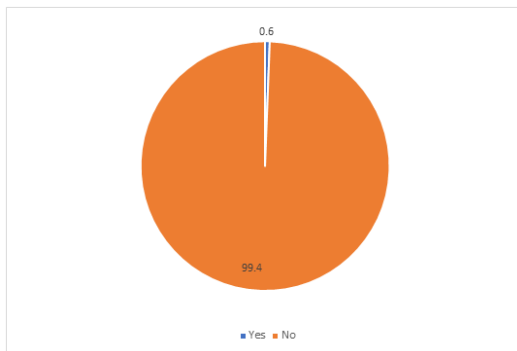


### Figure 8: Distribution of patients according to the history of oral contraceptive use History of hormone replacement therapy

In the study subjects, only 0.6% of the patients had a history of hormone replacement therapy. The detailed distribution of subjects according to the history of hormone replacement therapy is shown in table 9 and figure 9.

**Table 9. Distribution of patients according to the history of hormone replacement therapy**

Hormone replacement therapy	Frequency (n)	Percentage (%)
Yes	3	0.6
No	497	99.4
Total	500	100



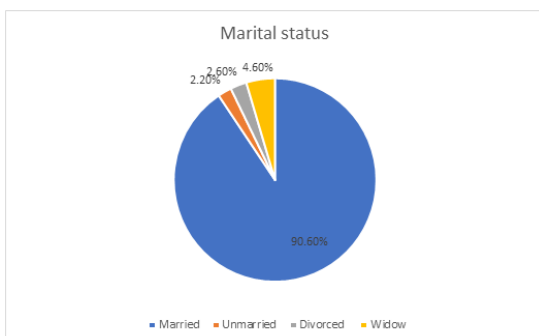
**Figure 9: Distribution of patients according to the history of hormone replacement therapy**

### Marital status

In the study, 90.6% (n=453) of the subjects were married whereas, 2.2% (n=11), 2.6% (n=13), and 4.6% (n=23) of the patients were unmarried, divorced, and widow respectively. The detailed distribution of subjects according to marital status is depicted in table 10 and figure 10.

**Table 10: Distribution of patients according to marital status**

Marital status	Frequency (n)	Percentage (%)
Married	453	90.6
Unmarried	11	2.2
Divorced	13	2.6
Widow	23	4.6
Total	500	100



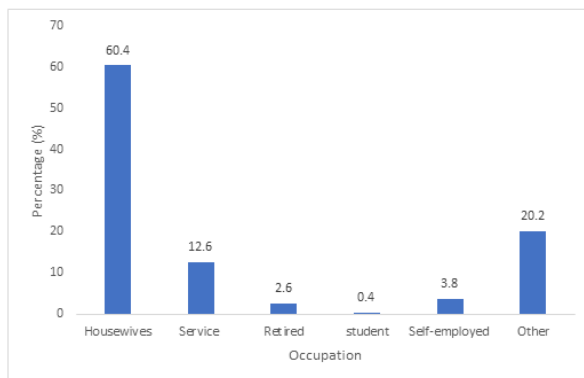
**Figure 10. Distribution of patients according to marital status**

### Occupation

The majority of study subjects were housewives (60.4%, n=302) whereas, the occupation of 12.6% (n=63), 2.6% (n=13), 0.4% (n=2), 3.8% (n=19), and 20.2% (n=101) of patients were service, retired, student, self-employed, and other respectively. The detailed distribution of subjects according to occupation is depicted in table 11 and figure 11.

**Table 11. Distribution of patients according to marital status**

Occupation	Frequency (n)	Percentage (%)
Housewives	302	60.4
Service	63	12.6
Retired	13	2.6
Student	2	0.4
Self-employed	19	3.8
Other	101	20.2
Total	500	100



**Figure 11: Distribution of patients according to marital status**

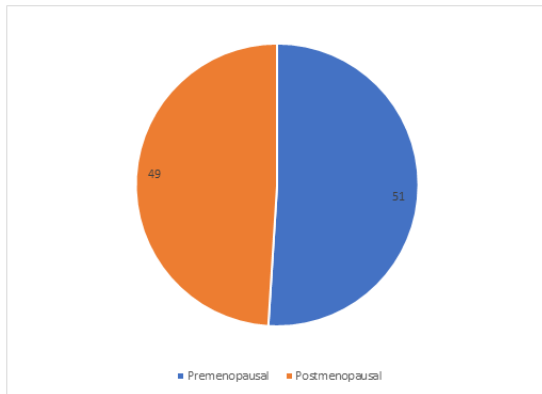
### Menopausal status

In the study patients, 51% (n=255) of the subject had premenopausal status whereas, 49% (n=245) of the subjects were with postmenopausal status. The detailed distribution of subjects according to menopausal status is depicted in table 12 and figure 12.

**Table 12. Distribution of patients according to menopausal status**

Menopausal status	Frequency (n)	Percentage (%)
Premenopausal	255	51
Postmenopausal	245	49
Total	500	100





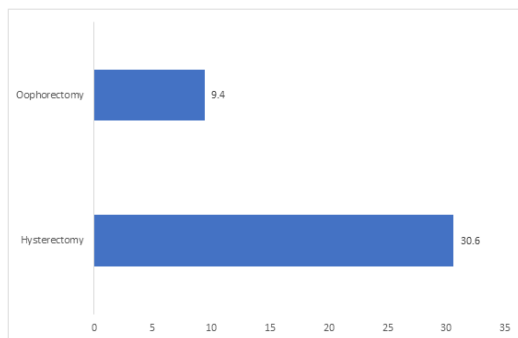
**Figure 12. Distribution of patients according to menopausal status**

### Gynaecological procedure

Among the study subjects, 30.6% (n=153) of the patients had hysterectomies while 9.4% (n=47) had an oophorectomy. The detailed distribution of subjects according to hysterectomy and oophorectomy status is depicted in table 13 and figure 13.

**Table 13: Distribution of subjects according to Gynaecological procedure**

Gynaecological procedure	Frequency (n)	Percentage (%)
Hysterectomy	153	30.6
Oophorectomy	47	9.4



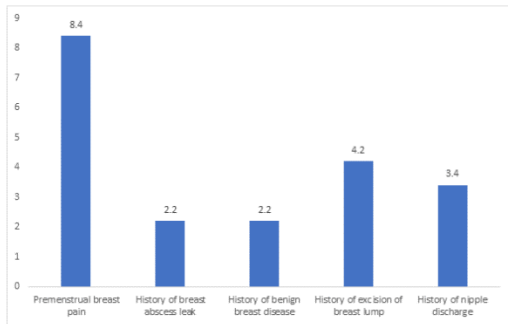
**Figure 13: Distribution of subjects according to gynaecological procedure**

### Benign breast diseases

Premenstrual breast pain was experienced by 8.4% (n=42) of patients, and 2.2% (n=11) of patients had a history of breast abscess drainage. Whereas, a history of benign breast disease, excision of breast lump, and nipple discharge was present in 2.2% (n=11), 4.2% (n=21), and 3.4% (n=17) of patients respectively. The detailed distribution of subjects according to benign breast diseases is illustrated in table 14 and figure 14.

**Table 14: Distribution of subjects according to benign breast diseases**

Benign breast disease	Frequency (n)	Percentage (%)
Premenstrual breast pain	42	8.4
History of breast abscess leak	11	2.2
History of benign breast disease	11	2.2
History of excision of breast lump	21	4.2
History of nipple discharge	17	3.4
Total	102	20.4



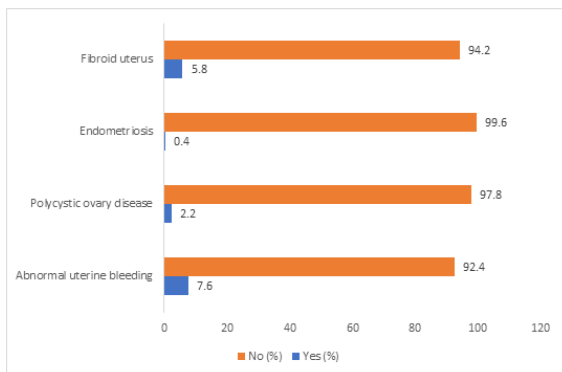
**Figure 14: Distribution of subjects according to benign breast diseases**

**Gynaecological conditions**

In this study, 7.6% (n=38) patients had abnormal uterine bleeding whereas, polycystic ovarian disease, endometriosis, and fibroid uterus were the conditions present in 2.2% (n=11), 0.4% (n=2), and 5.8% (n=29) of the patients respectively. The detailed distribution of subjects according to gynaecological conditions is illustrated in table 15 and figure 15.

**Table 15: Distribution of subjects according to gynaecological conditions**

Gynaecological conditions	Yes		No	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Abnormal uterine bleeding	38	7.6	462	92.4
Polycystic ovary disease	11	2.2	489	97.8
Endometriosis	2	0.4	498	99.6
Fibroid uterus	29	5.8	471	94.2



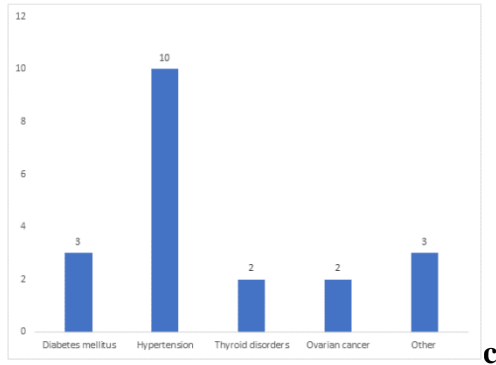
**Figure 15: Distribution of subjects according to gynaecological conditions**

**Comorbidities**

Among study subjects 10% (n=50) of patients had hypertension, 3% (n=15) subjects had diabetes mellitus, 3% (n=15) of the patients had other comorbidities, whereas, thyroid disorder and ovarian cancer were present in 4% (n=20) of patients respectively. The detailed distribution of subjects according to comorbidities is illustrated in table 16 and figure 16.

**Table 16: Distribution of subjects according to comorbidities**

Comorbidities	Frequency (n)	Percentage (%)
Diabetes mellitus	15	3
Hypertension	50	10
Thyroid disorders	20	4
Ovarian cancer	20	4
Other	15	3



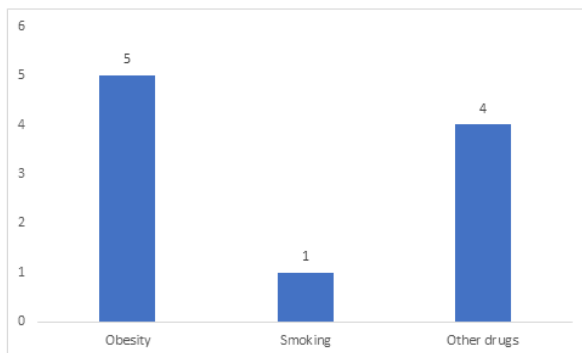
**Figure 16: Distribution of subjects according to comorbidities**

### Modifiable risk factors

Modifiable risk factors were observed in 10% (n=50) of the patients including obesity, smoking, and use of other drugs in 5% (n=25), 1% (n=5), and 4% (n=20) of patients respectively. The detailed distribution of subjects according to modifiable risk factors is depicted in table 17 and figure 17.

**Table 17. Detailed distribution of subjects according to modifiable risk factors**

Modifiable risk factors	Frequency (n)	Percentage (%)
Obesity	25	5
Smoking	5	1
Other drugs	20	4
Total	50	10



**Figure 17: Detailed distribution of subjects according to modifiable risk factors**

## DISCUSSION

According to GLOBOCON 2020 report, among various types of cancers, BC is the most commonly identified cancer and 5<sup>th</sup> most common reason for cancer-related mortalities. Moreover, it is estimated that around 2.3 million new cases of BC are reported every year.[54] Mortality is more in developing nations compared to developed nations. It is considered that prophylactic measures and screening programs are important to prevent incidences of BC and to initiate early treatment.[55] The present study was undertaken to the main demographic characteristics and clinic-pathological presentation of ~ 500 female patients presenting with palpable breast lumps diagnosed with breast cancer at BKLWRMC, Dervan, Ratnagiri, Maharashtra.

### Age

In this study, the age of the patients was  $51.20 \pm 10.8$  years which is similar to previous reports. A detailed comparison of the present study finding with various other studies is

shown in table 18.[56-59] Moreover, various reports agreed upon BC in India is more common in the younger patient compared to western nations which might be due to differences in the age structure of the populations.[56] A study conducted by Banaras Hindu University (BHU) suggested that the mean age of patients with BC was 51 years. Whereas, data from Sanjay Gandhi Postgraduate Institute of Medical Science, Lucknow suggested 49.7 years of mean age of the BC patients.[60] In this study, the majority of the participant was of >50 years of age (n=213, 42.6%) followed by 41-50 years (n=195, 39%) and <40 years (n=92, 18.4%). Whereas Ramchandra K. et al. in their study showed the incidence of BC in 34% and 21.3% of patients <40 years and 50-54 years age groups respectively.[59] The difference in the results may be due to the difference in sample size and study type. These findings suggest that the Indian population has lower age at presentation compared to developed nations.

**Table 18. Comparison between studies**

Similar studies	Mean age (years)
Khadilkar S. et al.[56]	50.3
Takalkar UV. et al.[57]	52.6
Chopra B. et al.[58]	51
Ramchandra K. et al.[59]	45.64
Present study	51.20

### Weight

In this study, the mean weight of patients was found to be 63.34±8.12 kg. Here, in 39.6% of participants weight ranged from 57-68 kg followed by 23.4% (n=117), 15.6% (n=78,) 10.8% (n=54), and 10.6% (n=53) of the subjects belonged to 49-58 kg, 69-78 kg, >78kg, and 38-48 kg weight category respectively. Similarly, in the study of Khadilkar S. et al., the average weight of the patients was 61.77 kg ranging from 30 to 123 kg.[56]

### Age at menarche

Prolonged exposure to estrogen and progesterone due to early menarche and delayed menopause is known to be a risk factor for BC. The chance of BC reduces by 15% for each year delay in menarche and increases by 3% every year delay in menopause.[61] Age at menarche is a predictor of ovulatory frequency in adolescence influencing long-lasting risk.[57] In the current study, the mean age at menarche was 12.47±1.42 years which was 13.69 years, 11.3 years 13.62 years in the studies of Khadilkar S. et al., Takalkar UV. et al., and Dyavarishetty PV, and Kowli SS respectively.[56, 57, 62] In our study 52.4% of women had their menarche at the age of 10-12 years whereas, menarche in 46% (n=230), 0.8% (n=4), and 0.8% (n=4) of patients it was 13-14 years, <10 years, and >14 years respectively. In the study of Dyavarishetty PV, and Kowli SS. In their study, they suggested menarche at age <12 years in 3.3% of the women while in 45.6% and 50% of patients it was at the age of 12-13 years and ≥14 years respectively.[62] Furthermore, various studies have shown a significant association between age at menarche and breast cancer.[63-65] However, studies from developed nations or western countries suggested no association between age at menarche and breast cancer.[66-69] The difference in the results may be due to ethnicity, lifestyle, different risk factors, etc.

### Age at first childbirth

First childbirth at an older age (>30 years) is associated with an increased risk of BC compared to women <30 years of age.[70] The age at first childbirth is among the well-established risk factors of BC however, its prevalence varies across rural and urban settings in India. First full-term pregnancy after 25 years of age compared to first full-term pregnancy

below 20 years of age is associated with risk of BC in both urban and rural women.[71] In this study, the average age at first childbirth was  $22.35 \pm 4.89$  years. In the study of Takalkar UV. et al. the average age of the patient at first childbirth was  $24.3 \pm 4.5$  years. Moreover, they compared the mean age at first childbirth of the control group subjects with BC patients ( $21.4 \pm 4.1$ ) which suggested no significant difference.[57] When assessed according to categories it was found that 49.4% of the women had their first child at the age of 20-24 years whereas, 34.8%, 11.6%, and 4.2% of women with BC had their first child at <20 years, 25-29 years,  $\geq 30$  years of age respectively. In the study of Dyavarishetty PV. et al. 4.4% of the patients had  $\geq 30$  years of age at first childbirth which was comparable with the present study.[62] However, Shadap A. conducted a study in the Udupi region of India that suggested the prevalence of this risk factor in 56% of patients.[72] This could be due to different socio-culture practices prevailing in the community.

### **Number of pregnancies**

Age at first birth and the number of pregnancies are among the well-known BC risk factors.[73-75] Literature suggested that the development of breast cancer depends on the extent of exposure to hormones such as estrogen and progesterone. Reproductive factors tend to increase exposure to hormones leading to stimulating cell growth consequently BC risk increases. These factors include early onset of menstruation, late onset of menopause, and factors that may allow the breast tissue to be exposed to high levels of hormones for longer periods, such as later age at first pregnancy and never having given birth.[76] The risk of BC decreases with the number of pregnancies. Women who have given birth to five or more children have half the breast cancer risk of women who have not given birth.[77] In this study, the mean number of full-term pregnancies was  $2.67 \pm 4.18$ . Similarly, in the study of Khadilkar S et al. and Takalkar UV. et al.[3, 4] the mean number of full-term pregnancies was 2.75 and 3 respectively. Moreover, the majority of patients had 1-2 pregnancies (49.6%,  $n=248$ ) followed by 35.6% ( $n=178$ ), 9.4% ( $n=47$ ), and 5.4% ( $n=27$ ) of the patients had 3-4, 0, and >4 pregnancies.

### **Duration of breastfeeding**

Breastfeeding is one of the modifiable risk factors of BC and is considered for its prevention. Prolonged breastfeeding decreases the risk of BC as well as provides various other benefits to the mother.[78-81] Breastfeeding for an extended period is associated with decreased risks of both hormone receptor-positive and hormone receptor-negative breast cancers.[82, 83] In this study >6 months duration of breastfeeding was seen in 79.4% of the patients whereas, in 20.6% of the patients the duration of breastfeeding was 4-6 months. In the current study, no patient was reported with no breastfeeding this might be due to breastfeeding being common practice in the study region. Similarly, the study of Khadilkar S et al. suggested >6 months and 4-6 months duration of breastfeeding in 85.3% and 2.2% of patients respectively.[56] In the study of Takalkar UV. et al. the mean duration of breastfeeding was  $4.1 \pm 1.3$  years. They suggested no significant difference in the duration of breastfeeding when compared between BC and normal patients.[57] Moreover, a study conducted in Germany suggested a significant association between the duration of breastfeeding and BC.[84] This is not true in the Indian or developing nation context as various studies suggested no significant association between the duration of breastfeeding and BC. The reason for this might be the difference in risk factors and breastfeeding practices in developed nations.[71, 85-87]

### **Family history of breast cancer**

A family history of breast cancer constitutes a major factor significantly associated with an increased risk of breast cancer. In this study, 3.4% of patients had a family history of BC this is similar to previous studies.[56, 57, 62]. Moreover, various studies have suggested a significant association between a family history of breast cancer (first-degree relatives) and breast cancer.[47, 88-91]

### History of oral contraceptive use and hormone replacement therapy

In this study, 4.4% of the had history of oral contraceptive usage The most common type of oral contraceptive was combined estrogen and progesterone pills followed by hormone replacement therapy among which one patient used estrogen-only pills. In the study subjects, only 0.6% of the patients had a history of hormone replacement therapy. These findings are comparable with the study of Khadilkar S et al.[56]

### Socioeconomic and clinical characteristics of the patients

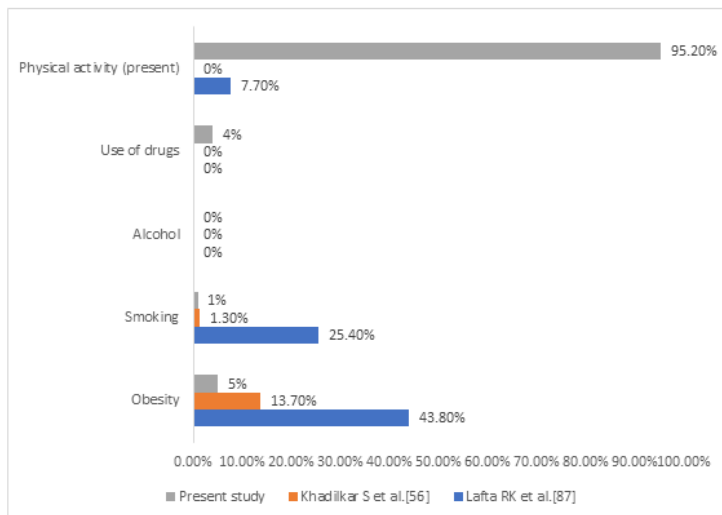
In this study, most of the participants were married (90.6%). About 60.4% of patients were housewives, while 15.2% of patients working or had worked earlier. Here, 51% (n=255) of women were premenopausal, and 49% (n=245) were postmenopausal. A considerable number of patients (30.6%) had a history of hysterectomy and oophorectomy (9.4%). Despite this no inference can be drawn regarding the risk factor implication of these data, it is therapeutically important from the point of view of the choice of endocrine therapy. In this study, abnormal uterine bleeding was noted in 7.6% of patients. In 2.2% of patients, polycystic ovarian disease was reported. Endometriosis was noted in 0.4% of patients. Whereas, 5.8% of the cases had fibroid uterus.

Regarding benign breast symptoms, 8.4% of the study subjects had a history of premenstrual breast pain. The history of breast abscess leak was present in 2.2% of cases. In 2.2%, 4.2%, and 3.4% of the cases, benign breast disease, excision of breast lump, and nipple discharge were reported previously. Benign breast diseases which include non-proliferative lesions, proliferative lesions without atypia, and atypical hyperplasias are said to be risk factors for later breast cancer with the highest risk with proliferative or atypical lesions.[92-94]

Among study subjects 10% (n=50) of patients had hypertension, 3% (n=15) subjects had diabetes mellitus, 3% (n=15) of the patients had other comorbidities, whereas, thyroid disorder and ovarian cancer were present in 4% (n=20) of patients respectively. Adequate physical activity was noted in the majority of patients (95.2%, n=476). Modifiable risk factors were observed in 10% (n=50) of the patients including obesity, smoking, and use of other drugs in 5% (n=25), 1% (n=5), and 4% (n=20) of patients respectively. Incidence of comorbidities and modifiable risk factors were less in the present study patients compared to other studies the possible reason for this is lifestyle, dietary habits, etc. (table 19).[87, 56]

**Table 18: Comparison between studies**

Modifiable risk factors	Lafta RK et al.[87]	Khadilkar S et al.[56]	Present study
Obesity	43.8%	13.7%	5%
Smoking	25.4%	1.3%	1%
Alcohol	-	0%	-
Use of drugs	-	-	4%
Physical activity (present)	7.7%	-	95.2%



**Figure 18**

## CONCLUSION

The present study aimed to investigate the demographic characteristics and clinical-pathological presentation of around 500 female patients diagnosed with breast cancer at BKLWRMC, Dervan, Ratnagiri, Maharashtra. The study found that breast cancer was more prevalent in women between the ages of 50 and 60. Most of the patients had an age at menarche of less than 13 years, and the majority had 1-2 children. A family history of breast cancer was present in a significant number of patients. Despite a lower incidence of breast cancer in India compared to Western nations, the social, economic, and psychological burden of the disease is still significant. The study found that the commonly attributed risk factors for breast cancer do not correlate and vary in this rural setting. Early detection of the disease is crucial for effective treatment, and the knowledge gained from this study can be used to improve awareness and address the burden of the disease effectively.

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