



Risk Factors of Breast Cancer Among Women – A Cross-Sectional Study in Selected Slums of Bhubaneswar City, India

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ABSTRACT

Background: Breast carcinoma is the most commonly diagnosed cancer (27.7%) and the leading cause of death (23.5%) among women in India as per GLOBOCAN 2018. There is considerable evidence that breast cancer risk is related to certain modifiable and nonmodifiable lifestyle factors. Thus, this study was conducted to estimate the prevalence of risk factors of breast cancer in women of age group 18-70 years in selected urban slums.

Methodology: This community based cross sectional study was conducted in selected 13 urban slums of Bhubaneswar which comes under the field practice area of Department of Community Medicine, Bhubaneswar, IMS and SUM Hospital Bhubaneswar, Odisha from September 2018 to October 2020. Data were entered to an excel sheet and SPSS software version 20 was used for analysis.

Results: Among the total population of 300, the mean age of the study subjects was 42 ± 12 years ranging from 20 to 69 years. Married women in the study were 95.3%. Including both modifiable and non-modifiable risk factors, 57% of the participants were having risk factors of breast cancer.

Conclusion: Women need to be aware of both modifiable and non-modifiable risk factors for breast cancer to adopt appropriate practices for prevention of Breast cancer.

Key words: Breast carcinoma, Women malignancy, Breast malignancy

INTRODUCTION

"BREAST CANCER" is a malignant cell growth in the breast. If left untreated, the cancer spreads to other areas of the body.¹ Breast cancer is the most common cancer among women worldwide and most common cause of cancer-related deaths in women.²

Breast carcinoma is the most commonly observed cancer (14% of overall cases) in India. Among females, it is the most commonly diagnosed cancer (27.7%) and is the leading cause of death (23.5%) in India. In urban areas, 1 in 22 women and in rural areas, 1 in 60 women develops breast cancer in her lifetime.³ It is prevalent not only in the developed part of the world but is commonly reported in the

developing countries as well.⁴

The breast cancer risk is higher in the following groups: increased age, history of breast cancer especially in the first-degree relatives before menopause; history of ovarian cancer especially before the age of 50; history of breast cancer or ovarian cancer in two relatives first- and second-degree, high calorie and fat diet; reproductive and hormonal factors; a personal history of breast and ovarian cancers.⁵ The risk of breast cancer increases in current users or 5 years and more use of combined hormone replacement therapy and the risk decreases after 10 years of stopping oral contraceptive use.^{6,7} History of radiotherapy for Hodgkin lymphoma increases the risk. It

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takes a minimum of about 5-10 years after exposure before a radiation induced breast cancer would develop and usually many more years.⁸ Consuming alcohol and smoking also have evidence of having some risk in causing breast cancer.^{9,10}

There is considerable evidence that breast cancer risk is related to modifiable lifestyle factors where it is possible for women to reduce their risk by changing lifestyles like making them physically active, avoiding weight gain, limiting alcohol intake, and taking healthy diet.¹¹ The study was conducted with the objective to estimate the prevalence of risk factors of breast cancer in women of age group 18-70 years in selected urban slums of Bhubaneswar.

MATERIALS AND METHODS

It was a community based cross-sectional study conducted in selected 13 urban slums of Bhubaneswar which was the field practice area of the Department of Community Medicine of IMS & SUM Hospital from September 2018 to October 2020. The study population included women aged 18-70 years of thirteen slums.

Sample size: The sample size was estimated by using the formula $4pq/d^2$ where prevalence of age at menarche ≤ 12 years (important risk factor of breast cancer) was taken as 24.4% from a study by Shadap A et al.¹² with allowable error as 20%.

The sample size was calculated to be 297 and rounded off to 300 participants.

Inclusion criteria: Women aged 18 years to 70 years and only one woman from a household were included in the study.

Exclusion criteria: Women who were sick or terminally ill and diagnosed case of breast cancer were excluded from the study.

Sampling: The population of thirteen slums under the field practice area of IMS & SUM Hospital, Bhubaneswar were listed. The sample size 300 was divided into thirteen slums equally i.e 23 participants from 12 slums and 24 participants from 1 slum. Systematic sampling method was used to choose the households in each slum. Sampling unit in the study was the household. On an average 128 households are there in each slum. 23 women were selected from 128 households with the sampling interval $128/23 = 5.56 \approx 6$. Starting from any random number between 1 and 6 first household was chosen and then every 6th household was chosen for the study. Woman of highest age group was chosen where more than one woman was present in the household.

Data collection: Data were collected by house to house visit by interview method using the pre-designed, pre-tested & semi-structured interview schedule. Informed written consent was obtained. The questions were explained in local language after establishing a good rapport. The data were checked

to assess completion of the schedule and accuracy of the data coding. Privacy and confidentiality were maintained. It took around 30-40 minutes for complete data collection of each respondent. In a day maximum 5 participants were interviewed.

Study tool: A pre-designed pre-tested semi structured interview schedule was used. The schedule was developed from previous studies after an in-depth literature review. The section Risk Factors were developed taking reference from Women's Health Questionnaire - Breast Cancer Risk, Short-Form - National Cancer Institute and Knowledge, Attitude and Practice of Breast self- Examination was developed from previous studies.^{13,14,15} Pre testing of the schedule was conducted on 30 participants to ensure the clarity of data collection and information.

The schedule contained.

Sociodemographic factors: Data regarding age, religion, caste, family type, number of family members, marital status, education and occupation of participant and head of family, total income of the family was included in this section.

Risk Factors of Breast cancer: Data on menstrual history, pregnancy related history, Contraceptive History, Hormone medication, Alcohol consumption, Smoking history, Dietary history, Physical activity, Family history was included in this section.¹⁶

Statistical analysis: After the data collection was completed, data was checked for completeness, then entered and cleaned in Microsoft Excel spreadsheet and exported to statistical package for social science (IBM SPSS statistics 20. Ink) for data analysis.

The categorical variables were expressed in number and percentages. Continuous variables in mean [standard deviation, SD] /median [interquartile range, IQR]) and 95% confidence intervals.

Mann Whitney U test, Kruskal Wallis, Correlation and Logistic Regression analysis were done where applicable. P value of 0.05 or less was considered as statistically significant.

Ethical consideration: Approval for the study was obtained from the Institutional Ethics Committee of IMS & SUM Hospital, S'O'A University, Bhubaneswar. The Reference Number for the same is Ref.no/DMR/IMS.SH/SOA/ 180122. Informed written consent was obtained from the participants before data collection.

RESULTS

Among participants, the mean age of the study subjects was 42 ± 12 years ranging from 20 to 69 years. Majority of them (97.3%) were Hindu. More than 40% belonged to other backward classes (41.7%). Most of the study participants had nuclear family structure (80.3%). Married women in the study were 95.3%. Majority had education up to middle school

Table 1: Distribution of Number of Risk factors (N=300)

Number of Risk Factors	Participants (%)
Non-modifiable	
With Risk Factor	95(31.7)
Without Risk Factor	205 (68.3)
Modifiable	
With Risk Factor	214(71.3)
Without Risk Factor	86 (28.7)
Both Non-modifiable and Modifiable (Total Risk)	
With Risk	171(57)
Without Risk	129(43)

Table 2: Non-modifiable Risk factors of Breast Cancer (N=300)

Non-modifiable Risk factors	Participants(%)
Age at menarche (in years)	
<12 years	59 (19.3)
12 years and above	242 (80.7)
Age at menopause (in years)	
>49 years	20 (6.7)
≤49 years	61 (20.3)
Menopause not reached	219 (73)
Family History of breast cancer	
Yes	5 (1.7)
No	295 (98.3)
Relation of the participant with the family member having breast cancer (n=5)	
Mother	1 (20)
Sister	1 (20)
Second degree relative	3 (60)
FNAC/ biopsy of breast done previously for benign breast disease	
Yes	2 (0.7)
No	298 (99.3)

(41%) and 71% of the participants were Homemak-er. Majority of participants belonged to Upper lower socioeconomic class (69.3%) according to Modified Kuppaswamy Socioeconomic Scale 2019.

Among the participants 31.7% non-modifiable risk factor. Majority, 71.3% of the participants had Modifiable risk factors of breast cancer. Including both modifiable and non-modifiable risk factors, 57% of the participants were having risk factors of breast cancer. (Table 1)

It was observed that, 19.3% of the participants had menarche at less than 12 years of age. There were 6.7 % of the participants with age at menopause > 49 years. Family history of breast cancer was present in 1.7% of the participants among which 40% were first degree relative and 60% were second degree relative. Only 0.7% of the participants had got biopsy done for benign breast disease and none of the study participants got a mammography done. (Table 2)

Among the participants, 86.7% were having mixed diet. Participants who had low physical activity were 27%. Only 1.3% of the participants were current alcohol consumers and 0.7% were current smokers. Obese participants were 11.7% and 26% of the participants consumed fruits rarely.

Table 3: Lifestyle-related Modifiable Risk Factors of breast cancer (N=300)

Lifestyle-related Modifiable Risk Factors	Participants (%)
Diet	
Vegetarian diet	40 (13.3)
Mixed diet	260 (86.7)
Physical Activity	
Low	81 (27)
Moderate	205 (68.3)
High	14 (4.7)
Current alcohol consumer	
Never	296 (98.7)
Smoking	
Current smoker	2 (0.7)
Never	298 (99.3)
Obesity(kg/m²)	
≥30	35 (11.7)
25-29.9	102 (34)
18.5-24.9	156 (52)
<18.5	7 (2.3)
Fruits/week	
Rarely	78 (26)
1-3 days	217 (72.3)
>3 days	5 (1.7)
Vegetables/week	
Rarely	24 (8)
3-5 days	276 (92)
Non vegetarian diet per week (N=260) (Excluding vegetarians)	
>3 days	13 (5.05)
1-3 days	229 (87.98)
Rarely	18 (6.97)
Most common non vegetarian meat taken (N=260) (Excluding vegetarians)	
Red meat	32 (12.4)
Chicken	138 (52.71)
Fish	90 (34.88)
Soya item/week	
Rarely	11 (3.7)
1-3 days	172 (57.3)
>3 days	117 (39)
How often do you consume dairy products?	
Rarely	36 (12)
3-5 days	185 (61.7)
Everyday	79 (26.33)
Fatty food/junk in a week	
>3 days	36 (12)
1-3 days	242 (80.7)
Rarely	22 (7.3)

Those who had vegetables rarely were 8%. Among non-vegetarians those taking non veg item like meat/fish >3days/week were 5.05%. Red meat consumption was common in 12.4%. Soya item was rarely consumed by 3.7% and 12% participants rarely took dairy products. 12% of the participants takes junk items more than 3 days in a week. (Table 3)

In this study group, among married women only 3.1% were nulliparous. 2% women gave birth after the age of 30 years. Among those who were married

Table 4: Modifiable Reproductive Risk Factors of breast cancer (N=300)

Modifiable Reproductive Risk factors	Participants (%)
Number of children (N=286)	
No children	9 (3.1)
1 to 2	163 (57)
3 to 4	108 (37.8)
5 and above	6 (2.1)
Age at first delivery (N= 277) (Excluding nulliparous and unmarried women)	
30 and above	6 (2)
25-29	24 (8)
20-24	113 (37.7)
<20	134 (44.7)
>30 years	6 (2)
26-30 years	7 (2.3)
20-25 years	81 (27)
Less than 20 years	192 (64)
History of breast feeding (N= 277)	
No	11 (4)
Yes	266 (96)
Number of months breastfed (N=277)	
0-5 months	6 (2)
6-12 months	7 (2.3)
13-24 months	25 (8.3)
25-48 months	190 (63.3)
49-72 months	37 (12.3)
>72 months	1 (0.3)
History of oral contraceptive use (N=300)	
Yes	147 (49)
No	153 (51)
Number of years of OCP use(N=147)	
More than 5 years	7 (4.8)
5 years and less	140 (95.2)

and parous, 4% had not breastfeed their child and 2% had not done exclusive breastfeeding. More than half of the study participants has history of oral contraceptive pill use was 49% and among them only 4% used it for more than 5 years. (Table 4)

Different sociodemographic variables were compared with presence of non-modifiable risk factor by univariate logistic regression. Socio economic class and age were significantly associated with having non-modifiable risk factor. Middle socio-economic class has 1.7 times more chance of having modifiable risk than lower socioeconomic class and age group 18-45 years was less likely of having non-modifiable risk factor than >60 years age group. (Table 5)

Different sociodemographic variables are compared with presence of modifiable risk factors by univariate logistic regression. Participants having higher level of education had 3.3 times chance of having modifiable risk factor, participants employed were at 2.172 times more chances of having modifiable risk factors, those from middle socio-economic class had 2.4 times more chance of having modifiable risk factor and married participants had 3.5 times more chance of having modifiable risk factor. (Table 6)

In multivariate logistic regression, we found employed participants, educated, higher Socio-economic class and married individuals to be significantly associated with having modifiable risk factor. (Table 7) 4

Table 5: Factors associated with non-modifiable risk factors by univariate logistic regression

Variables	Total (N=300) (%)	With risk (N=95) (%)	Without risk (n=205) (%)	OR (95%CI)	P-value
Education of women					
Above high school	49(16.3)	17(34.7)	32(65.3)	1.178 (0.618-2.248)	0.619
Below high school	251(83.7)	78(31.1)	173(68.9)	1	
Employment					
Employed	87(29)	30(34.5)	57(65.5)	1.198 (0.706-2.035)	0.503
Unemployed	213(71)	65(30.5)	148(69.5)	1	
SES					
Middle	92(30.7)	37(40.2)	55(59.8)	1.74 (1.03-2.91)	0.035*
Lower	208(69.3)	58(27.9)	150(72.1)	1	
Marital Status					
Married	286(95.3)	93(32.5)	193(67.5)	2.89 (0.634-13.183)	0.17
Unmarried	14(4.7)	2(14.3)	12(85.7)	1	
Religion					
Hindu	292(97.3)	94(32.2)	198(67.8)	3.32 (0.403-27.4)	0.26
Muslim	8(2.7)	1(12.5)	7(87.5)	1	
Family type					
Joint	59(19.7)	21(35.5)	38(64.4)	1.247 (0.685-2.27)	0.47
Nuclear	241(80.3)	74(30.7)	167(69.3)	1	
Caste					
General	85(28.3)	31(36.5)	54(63.5)	1.354 (0.798-2.3)	0.262
Others	215(71.7)	64(29.8)	151(70.2)	1	
Age					
18-45 years	210(70)	57(27.1)	153(72.9)	0.510 (0.-304-0.855)	0.011*
45-60 years	60(20)	22(36.6)	38(63.3)	0.755 (0.417-1.366)	0.353
>60 years	30(10)	16(53.3)	14(46.7)	1	

*p<0.05 is significant

Table 6: Factors associated with modifiable risk factors by univariate logistic regression

Variables	Total (N=300) (%)	With Risk (N=214) (%)	Without Risk (N=86) (%)	OR (95%CI)	P-value
Education of women					
Above high school	49(16.33)	43(87.8)	6(12.2)	3.353 (1.371-8.201)	0.008*
Below high school	251(83.66)	171(68.1)	80(31.9)	1	
Occupation					
Employed	87(29)	71(81.6)	16(18.4)	2.172 (1.177-4.010)	0.013*
Unemployed	213(71)	143(67.1)	70(32.9)	1	
Socio-economic status					
Middle	92(30.67)	76(82.6)	16(17.4)	2.409 (1.308-4.439)	0.005*
Lower	208(69.33)	138(66.3)	70(33.7)	1	
Marital status					
Married	286(95.3)	208(72.7)	78(27.3)	3.55 (1.195-10.575)	0.023*
Unmarried	14(4.7)	6(42.9)	8(57.1)	1	
Religion					
Hindu	292(97.3)	209(71.6)	83(28.4)	1.511 (0.353-6.465)	0.578
Muslim	8(2.7)	5(62.5)	3(37.5)	1	
Family type					
Nuclear	241(80.3)	172 (71.4)	69(28.6)	1.009 (0.538-.892)	0.978
Joint	59(19.7)	42(71.2)	17(28.8)	1	
Family history					
Yes	295(98.3)	4(80)	1(20)	1.619 (0.178-14.696)	0.669
No	5(1.7)	210(71.2)	85(28.8)	1	
Caste					
General	85(28.3)	63(74.1)	22(25.9)	1.214 (0.689-2.139)	0.503
Others	215(71.7)	151(70.2)	64(29.8)	1	
Age					
18-45 years	210(70)	147(70)	63(30)	1.248 (0.714-2.181)	0.436
45-60 years	60(20)	45(75)	15(25)	0.793 (0.416-1.515)	
>60 years	30(10)	22(36.67)	8(13.33)	1	

*p<0.05 is significant

Table 7: Multivariate binary logistic regression between various factors and modifiable risk factor

Variables	With Risk (N=214) (%)	Without Risk (N=86) (%)	Adjusted OR(95%CI)	P-value
Education of women				
Above high school	49(16.33)	43(87.8)	3.58 (1.427-8.98)	0.007*
Below high school	251(83.66)	171(68.1)	1	
Occupation				
Employed	87(29)	71(81.6)	2.226 (1.164-4.257)	0.005*
Unemployed	213(71)	143(67.1)	1	
Socio-economic status				
Middle	92(30.67)	76(82.6)	2.451 (1.307-4.598)	0.016*
Lower	208(69.33)	138(66.3)	1	
Marital status				
Married	286(95.3)	208(72.7)	4.423 (1.376-14.219)	0.013*
Unmarried	14(4.7)	6(42.9)	1	

*p<0.05 is significant

DISCUSSION

Breast cancer is emerging as a global epidemic. Among females, breast carcinoma is the most commonly diagnosed cancer (27.7%) and is the leading cause of death (23.5%) in India.² India is undergoing rapid urbanization, which is greatly impacting health of the citizens. One of the rising concerns of drastic lifestyle and environmental changes favour development of risk factor for breast cancer.

Proportion of participants having risk factors is more than 50% in this study. Primary prevention in the form of health education about healthy lifestyle and

dietary habits and secondary prevention that is early diagnosis in the form of screening is the governing factor for the control of breast cancer.

This study reports the prevalence of modifiable and non-modifiable risk factors of breast cancer in the women aged 18-70 years in selected urban slums Bhubaneswar city. The present study included 300 participants where 19.3% had reached menarche before 12 years of age. Among postmenopausal women, 24.7% of the women attained menopause above 49 years of age. History of previous biopsy due to benign breast disease was found in 0.7% participants. In a study by Chaudhary P et al. in 2019, they showed

that 18.1% had menarche before 12 years of age, 31.7% attained menopause above the age of 49 years.¹⁷ While another study in Delhi by Khokhar A in 2013 in a population of 721 working women aged 20 years and more, reported that 12.1% reached their menarche before the age of 12 years and there was a history of benign breast disease for which biopsy was done in 2.3% of the participants.¹⁸

It is reported that women with family history of breast cancer have more tendency to develop breast cancer. In this study, it was observed that 1.7% participants had a family history of breast cancer. Similar to our study, a study in Mumbai reported, 1% participants had a family history of breast or ovarian cancer.¹⁸ In a cross-sectional study among slum women above 35 years in Mumbai by Aurangabadkar SK et al. in 2019 reported a higher proportion (12.5%) of participants had family history of breast cancer and 4% participants had undergone breast biopsy for history of benign breast disease.¹⁹ In comparison the prevalence of family history of breast cancer and a history of previous biopsy due to benign breast disease in this study is lower. This may be attributed to the difference in geographical location and difference socio-cultural factors.

In this study, among married women 3.1% were nulliparous. Only 2% gave birth after the age of 30. Higher prevalence was seen in the study by Aurangabadkar SK et al. in Mumbai. The study reported 8% women to be nulliparous, 5.5% participants gave birth after the age of 30.¹⁹ Lower prevalence of nulliparous women and women giving birth after age of 30 in this study might be because this study is conducted in the urban slums and therefore the participants get married at an early age and also give birth at an early age of life.

Breastfeeding is a very common practice in India. In this study among married and parous women, only 4% did not breastfeed their child and 2% did not do exclusive breastfeeding. Almost half of the study participants has history of oral contraceptive pill use (49%) and among them only 4% used it for more than 5 years. In comparison in the study done in Delhi by Khokhar A in 2013 where 3.2% participants did not breastfeed which is almost similar to this study (4%) and 11.6% breastfed only till 3 months. 41.5% women were using oral contraceptive pill which is lower than this study.¹⁸ In the study done in Brazil the women who used oral contraceptive pills or hormone replacement therapy for more than 6 years was 8%.²⁰ In a study in Mumbai 16.9% did not give breastfeeding to their child which is higher than this study.²¹ The difference in breastfeeding may be due to difference in socio-cultural background.

In the present study, red meat was consumed more frequently by 12.4% of the participants. In comparison a lower prevalence of red meat consumption of 3.9% was seen in the study done in Delhi.¹⁸

Obese participants were (11.7%) in this study and prevalence of low physical activity is observed in

27% of the participants. However, in the study conducted in Delhi, 15.2% did not have any physical activity and 38% women were obese.¹⁸ Increased Body Mass Index shows an association with breast cancer. In India, according to National Family Health Survey (NFHS) the percentage of ever married women aged 18-49 years who are overweight or obese increased from 15% in NFHS- 3 to 20% in NFHS-4.²²

In this study only 1.3% of the participants are current alcoholic beverage consumers and 0.7% are current smokers. 26% of the participants rarely consumed fruits. In the study done in Nepal the prevalence of current smokers was 32% and alcohol consumers were 45.7%.¹⁷

In this study those who rarely consumed vegetables were 8%. Soya item was rarely consumed by 3.7% and 12% participants rarely took dairy products. 12% of the participants takes junk items three or more days in a week. In comparison an Epidemiological Study on Breast Cancer Associated Risk Factors and Screening Practices among Women in the Holy City of Varanasi, Uttar Pradesh, India by Paul S et al. done in 2015 reported vegetables and fruits were not used by 2% participants and 13.2% never consumed soya products.²³ Inadequate consumption of vegetables and consumption of soft drinks, industrially produced juices, fried foods, and sweets were identified as risk factors for breast cancer.²⁴

In this study 31.7% of the participants had at least 1 or more non-modifiable risk factors and 71.3% had at least 1 or more modifiable risk factor. Considering both modifiable and non-modifiable risk factors 57% of the participants were having risk factors of breast cancer. In comparison another study among community women of Udupi, Karnataka by Shadap A in showed 252 (78.75%) belonged to "with risk" category and 68 (21.25%) belonged to "No risk" category for risk factors of breast cancer. This finding was similar to our study.²⁵ While a study in Mumbai by Dyavarishetty PV et al. in 2018 reported less prevalence i.e 15.5% of the women having at least one risk factor for breast cancer. The prevalence of individual risk factors was below 6%. This difference might be because of the difference in number of risk factors that has been included.²¹

In this study sociodemographic characteristics associated with presence of non-modifiable risk factors in univariate logistic regression was socioeconomic status and age. Middle socioeconomic class had 1.74 times significant higher chance of having non-modifiable risk factor than lower socioeconomic class. Age group of 18-45 years and 45-60 years were less likely to have non-modifiable risk factor than >60 years. Similarly, in a case control study among women admitted to a tertiary care hospital in Karnataka by Chaubey JK et al. the risk of breast cancer was more in women of higher socio-economic class.²⁶ In a systematic review and meta-analysis in Europe a significantly increased incidence (RR 1.25) was observed for women with higher socioeconomic

status.²⁷As stated by CDC, the risk of breast cancer increases after 50 years of age. In this study we also observed that the non-modifiable risk factors were significantly more in >60 years age group. In another study "Breast Cancer Risk from Modifiable and Non-Modifiable Risk Factors among Women in Southeast Asia: A Meta-Analysis" by Nindrea RD et al. in 2017, OR of age>40 years being a risk factor was 1.53.²⁸

In this study the sociodemographic characteristics were significantly associated with higher risk of having modifiable risk factors were higher education, higher socioeconomic class and marital status. In comparison a study on risk factors of breast cancer among patients attending the tertiary care hospital, in Udupi district reported that the cases of breast cancer with 7-12 years of education had 4.84 times more risk of breast cancer.²⁹ In the present study, participants having education above high school showed 3.353 times higher presence of risk factors of breast cancer, married women had 3.55 times higher chances of have modifiable risk factors. Similar to this study in a case-control study cancer in Iranian Women incidence of breast cancer was significantly more in married women.³⁰ The risk factors in married women might be more because of the lack of time and knowledge of risk factors.

In a study by Robert SA et al. in 2004, it was observed that after adjusting individual education and other individual level risk factors the odds of risk of breast cancer were more in people living in highest SES communities. This study also observed that women had a greater risk of breast cancer if they had a higher level of education.³¹ The odds of having modifiable risk factors are more in higher socioeconomic class may be because of their unhealthy lifestyle and also late marriages which has become more common.

Since number of participants having modifiable risk factors were more in this study it is necessary to raise awareness and to provide education about the reproductive risk factors as well as lifestyle related risk factors to the community. It is important to educate the society about the healthy diets and the need to change their unhealthy dietary patterns. Decreasing the risk of breast cancer through prevention of modifiable risk factors is a task that requires the participation of all of society, especially the health professionals.

CONCLUSION

Proportion of participants having risk factors of breast cancer were more than 50% in this study. Women in my study population need to be aware of both modifiable and non-modifiable risk factors for breast cancer to adopt appropriate practices for prevention of Breast cancer.

RECOMMENDATIONS

As the proportion of participants having risk factor was more than half, it is necessary to target modifiable risk factors to reduce the burden of breast cancer. Standard calibrated model considering risk factors which are more relevant for Indian population should be designed and implemented for calculating the percentage risk in future five years or for life-time.

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