

# Knowledge and Practice of Screening Methods Regarding Breast Carcinoma Among Reproductive-Aged Women

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## ABSTRACT



**Background:** Breast cancer is a major public health problem in developing countries. Breast cancer is the second most common malignancy among Nepalese women. This study aimed to assess the level of knowledge and practice of screening methods of breast carcinoma among reproductive-aged women in Bharatpur Metropolitan city ward no 5.

**Methods:** A Community-based cross-sectional study was conducted from September 17, 2021, to October 16, 2021, using face-to-face interviews in Bharatpur Metropolitan city ward no. 5. A total of 155 reproductive-aged women (15-49 years) were considered as a sample. We used Pearson's Chi-square test and binary logistic regression analysis to assess the factors influencing the knowledge and practice of screening methods of breast carcinoma among reproductive-aged women in Bharatpur Metropolitan City, ward no.5, Chitwan.

**Results:** Among 155 reproductive-aged women, 58.7% had a satisfactory level of knowledge and 41.3% had an unsatisfactory level. 34.2% of respondents knew about screening methods. Respondents acquainted with screening methods were 34.2%. Among them, 60.3% knew about Breast Self Examination (BSE), 52.8% knew about the clinical breast examination (CBE) and 39.6% knew about mammography. The level of knowledge of breast carcinoma was significantly associated with occupation [other than agriculture; Crude odds ratio (COR=2.19; CI=1.10-4.33)], educational status [literate (COR=4.38; CI=1.47-13.10)], marital status [other than married (COR=4.67; CI=1.30-16.68)], monthly income [>40,000 Rs (COR=3.71; CI=1.43-9.62)].

**Conclusions:** More than half of respondents had a satisfactory level of knowledge regarding breast cancer despite that only a few participants had practiced screening methods. Increasing the literacy rate, improving socioeconomic status would increase knowledge and practice of screening methods regarding breast carcinoma. It is needed to provide comprehensive, updated information and supportive interventions which could aim to increase knowledge and practice of screening methods for breast cancer.

**Keywords:** Breast cancer; knowledge; reproductive-aged women; screening methods

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## INTRODUCTION

Breast cancer is a disease in which cells in the breast cells grow out of control.<sup>1</sup> Breast cancer occurs in every country of the world in women at any age after puberty but with increasing rates in later life.<sup>2</sup> Breast cancer is the second most common cause of cancer-related death among women in the world. The American cancer society has estimated that approximately 1.9 million new cancer cases diagnosed and 608,570 cancer-related deaths in the United States will occur in 2021, including 281,550 new cases of invasive breast cancer.<sup>3</sup> A study by Youlten et al. in 2014 revealed that breast cancer was the most prevalent cancer and the fourth leading cause of cancer-related mortality among women in Asia.<sup>4</sup> Breast cancer is a substantial social and economic burden in Nepal. In developing countries like Nepal, where there is a lower number of women who attained higher education which plays a vital role in the early diagnosis of breast cancer. Survival from breast cancer is good if it is diagnosed at an early stage when it is not too large and has not yet spread is more likely to be treated successfully.<sup>5</sup> There is an increasing burden of breast cancer in low-income countries, which is three times higher than in high-income countries.<sup>6</sup> The increased burden of breast cancer is due to physical inactivity, changes in reproductive patterns, and unhealthy dietary habits.<sup>(7,8)</sup> Breast cancer screening is an effective prevention strategy to reduce breast cancer burden.<sup>9</sup> Knowledge regarding early warning signs and symptoms, risk factors, screening methods of breast carcinoma is vital to make women aware so that women would seek medical help if they notice any changes in their breasts. It is advised that early detection and screening can save women's lives. Mammography, clinical breast examination, and breast self-examination are

three widely practiced screening tests. Breast cancer is a universal disease affecting people regardless of their race, socio-economic status, or culture. This study aimed at assessing knowledge and practice of screening methods regarding breast carcinoma among reproductive-aged women in Bharatpur Metropolitan City Ward number five.

## METHODS

A Community based cross-sectional study was conducted from September 17, 2021 to October 16, 2021, using face-to-face interviews. The study was carried out in Bharatpur Metropolitan city ward no.5 Chitwan, Nepal.

The sample size was calculated with a prevalence of 27% as per previous study<sup>10</sup> (overall pooled knowledge of breast self-examination is 27%) with a 7% margin of error and using Cochran formula  $z^2pq/e^2$  <sup>(11)</sup>. There were altogether 15 questions related to meaning, sign and symptoms, risk factors and prevention. The level knowledge was graded on scale of 0-15. The graded was assigned as 1 for correct answer and 0 for incorrect answer. The total obtained score was done for normality test. As score was not normally distributed so median was the cut off value. Any score more or equal than cut off point was considered as satisfactory level of knowledge (9 and above point) and less than cutoff point was considered as unsatisfactory level of knowledge (<9 point). Pretesting was done with 10% of the samples in non research settings. Ethical clearance was obtained from CMC-IRC(Ref: CMC-IRC/078/079-041). Systematic random sampling was used.

Bharatpur Metropolitan City-05 was chosen purposively; for the purpose of this study, the entire Household name list provided by the Bharatpur metropolitan city-05 office (through the excel sheet) was the sampling frame for the study, and the kth item was identified as;  $k = \frac{\text{Total household}}{\text{sample size}}$ . The 1<sup>st</sup> household

was randomly selected out of the total household using a random number, and then, every kth item from the selected 1st item was selected as the respondent by using Microsoft excel 2010. Only one reproductive-aged woman was chosen from one selected household; if reproductive-aged women were not available, then the researcher selected the next adjacent household, and if two or more two reproductive-aged women were present in the household in this situation highest aged women were taken as a sample. In case of desired k<sup>th</sup> item was not found after two successive attempts, the respondent just above the exact k<sup>th</sup> item was selected as a respondent for the study. In this way, the desired sample size was collected. The total duration of data collection was one month. Collected data was manually checked and entered in Epi-data 3.1 and exported to IBM SPSS 20.0 version software for further analysis. The knowledge of breast carcinoma among reproductive aged women assesses by descriptive analysis of collected information. Kolmogorov -Smirnov (K-S) test was used to assess normality of data. The significant factors associated with knowledge of breast carcinoma were identified by using Pearson chi-square or fisher exact test and binary logistic regression model at 5% level of significance. COR was computed by using binary logistic regression 5% level of significance.

## RESULTS

Table 1 depicts that more than half (59.4%) of respondents knew that a change in shape/size of nipple and lump in breast could be a sign of breast cancer. Out of the total respondents, 61.9% change in skin colour and 68.4% lump under armpit knew that it could be a sign of breast cancer. More than half of respondents

(63.2%) knew the change in shape/size of breast could be a sign of breast cancer. Almost half of participants knew breast cancer could not be hereditary (52.9%), and more than half of participants knew breast cancer could be present in the absence of pain (63.9%). The majority of respondents (94.2%) knew breast cancer is curable if detected in the early stages. Less than half of the participants (45.2%) knew trauma to the breast could not cause breast cancer. The majority of participants (87.7%) knew breast cancer is not communicable. Very few respondents (13.5%) knew menstruation at an early age caused breast cancer. Less than half of respondents knew alcohol consumption (37.4%) and obesity (39.4%) is risk factor for breast carcinoma. More than half of respondents (78.1%) knew women who had breastfed children are not at risk of breast carcinoma. Less percentage of respondents (47.7%) knew women with a family history of breast cancer are at risk of breast carcinoma (**Table 1**).

Table 2 reveals that 91 (58.7%) of participants had a satisfactory level of knowledge, whereas 64(41.3%) had an unsatisfactory level of knowledge regarding breast carcinoma, among 155 participants, median score 9 with a minimum score of 2 and a maximum score 14. Table 3 showed that there was significant association of level of knowledge regarding breast carcinoma with independent variables i.e. occupation ( $p=0.023$ ), education status ( $p=0.005$ ), marital status ( $p=0.001$ ), monthly income ( $p=0.023$ ), family history and neighbour suffer (Table 3). Age group, ethnicity, level of education, type of family, presence of health worker in family and anytime involved in awareness activities were not significantly related.

**Table 1:** Knowledge regarding breast carcinoma among reproductive-aged women

Statements	Correct response	
	Frequency	%
Change in the shape/size of the nipple could be a sign of breast cancer	92	59.4
A lump in the breast could be a sign of breast cancer	120	77.4
Change in skin color could be a sign of breast cancer	96	61.9
A lump under the armpit could be a sign of breast cancer	106	68.4
Changes in the shape/size of the breast could be signs of breast cancer	98	63.2
Breast cancer can be hereditary	82	52.9
Breast cancer can be present in the absence of pain	99	63.9
Breast cancer is curable if detected in the early stages	146	94.2
Trauma to breasts cannot cause breast cancer	70	45.2
Breast cancer is not communicable	136	87.7
menstruation at an early age causes breast cancer? (<12yrs)	21	13.5
Is alcohol consumption is a risk factor for breast carcinoma?	58	37.4
Obesity is a risk factor for breast carcinoma	61	39.4
Women who had breastfed child is not at risk of breast carcinoma?	121	78.1
Women with a family history of breast cancer as a risk factor for breast carcinoma	74	47.7

**Table 2:** Level of knowledge regarding breast carcinoma among reproductive-aged women

	Category	Frequency (%)
Level of knowledge	Unsatisfactory	64(41.3)
	Satisfactory	91(58.7)
Median (IQR) = 9/4	Min/Max = 2/14	p-value = 0.001##

## Denotes significant result (reject null hypothesis) shows through Kolmogorov-Smirnov (K-S)

**Table 3:** Bivariate analysis between the level of knowledge regarding breast carcinoma and independent variables

Variables	Frequency	Level of knowledge		COR (95% of CI)	P-value
	N (%)	Poor (%)	Good (%)		
Age group					
< =30	65(41.9)	32(49.2)	33(50.8)	Ref	0.088
Above 30	90(58.1)	32(35.6)	58(64.4%)	1.75(0.917-3.36)	
Ethnicity					
Brahmin/chhetri	107(69)	41(38.3)	66(61.7)	1.48(0.74-2.94)	0.262
Non-Brahmin/chhetri	48(31)	23(47.9)	25(52.1)	Ref	
Occupation					
Agriculture	95(61.3%)	46(48.4%)	49(51.6%)	Ref	0.023**
Other than agriculture	60(38.7)	18(30)	42(70)	2.19(1.10-4.33)	
Education status					

Illiterate	18(11.6)	13(72.2)	5(27.8)	Ref	0.005**
Literate	137(88.4)	51(37.2)	86(62.8)	4.38(1.47-13.01)	
Level of education (n=137)					
Secondary and below	75(54.7)	30(40)	45(60)	Ref	0.460
Higher and above	62(45.3)	21(33.9)	41(66.1)	1.30(0.66-2.62)	
Type of family					
Nuclear	117(75.5)	47(40.2)	70(59.8)	1.20(0.57-2.52)	0.619
Joint	38(24.5)	17(44.7)	21(55.3)	Ref	
Marital status					
Married	135(87.1)	61(45.2)	74(54.8)	Ref	0.011**
Other than married	20(12.9)	3(15)	17(85)	4.67(1.30-16.68)	
Monthly income					
0-19000	32(20.6)	19(59.4)	13(40.6)	Ref	0.023**
20000-40000	77(49.7)	32(41.6)	45(58.4)	2.05(0.88-4.75)	
Above 40000	46(29.7)	13(28.3)	33(71.7)	3.71(1.43-9.62)	
Family history					
Yes	8(5.2)	2(25)	6(75)	2.18(0.42-11.20)	0.47##
No	147(94.8)	62(42.2)	85(57.8)	Ref	
Presence of a health worker in a family					
Yes	17(11)	4(23.5)	13(76.5)	2.50(0.77-8.05)	0.115
No	138(89)	60(43.5)	78(56.5)	Ref	
Any time involved					
Yes	17(11)	5(29.4)	12(70.6)	1.79(0.59-5.36)	0.292
No	147(94.8)	59(42.8)	79(57.2)	Ref	
Neighbour suffer					
Yes	10(6.5)	2(20)	8(80)	2.98(0.61-14.56)	0.19##
No	145(93.5)	62(42.8)	83(57.2)	Ref	

\*\* denotes significant association (By applying Pearson chi-square test at 5% level of significance)

## Fisher exact test p-value; COR denotes crude odds ratio computed from bi-variate analysis (keep constant other variables)

Table 4 depicts those 53 (34.2%) respondents who knew about screening methods. Among them (60.3%) knew about BSE, (52.8%) CBE, and (39.6%) mammography. Only 32.9% practised BSE, and the frequency of practice once a month was only 27.4%. The Source of knowledge on BSE is maximum from mass

media (33.3%). The majority of respondents did not practice clinical breast examination (85.8%), and the reason was lack of information (49.6%). Maximum of the respondents did not practice mammography (87.7%), and reason was again lack of information (64.7%)

**Table 4:** Knowledge and practice regarding screening methods of breast carcinoma among reproductive-aged women

Variables	Category	Frequency (%)
Know screening methods	Yes	53(34.2)
	No	102(65.8)
If yes what methods (n=53) ***	BSE	32(60.3)
	CBE	28(52.8)
	Mammography	21(39.6)
Ever Practice BSE	NO	104(67.09%)
	Yes	51(32.9)
If Yes frequency of practice (n=51)	Sometimes	32(62.7)
	Once a week	8(15.6)
	Once a month	14(27.4)
	Others	1(1.9)
Source of knowledge on BSE (n=51)	Academic education	9(17.6)
	Relatives/friends/family	2(3.9)
	Health center/health worker	2(3.9)
	Mass media	17(33.3)
	Others	2(3.90)
Reason for not practicing BSE (n=104)	Don't know	2(1.9)
	Not felt problem/not necessary	48(46.1)
	Unknown	33(31.7)
	Others	21(20.1)
Ever practice CBE	Yes	22(14.2)
	No	133(85.8)
Reason for not practising CBE (n=133)	Lack of information	66(49.6%)
	Not felt problem/ not necessary	43(32.3%)
	Others	24(18.1)
Ever went for mammography	Yes	19(12.3)
	No	136(87.7)
Reason for not doing mammography(n=136)	Lack of information	88(64.7)
	Not needed/ no problem	23(16.9)
	Others	25(18.3)

\*\*\* denotes multiple responses.

## DISCUSSION

Knowledge about breast cancer in reproductive-aged women will help to create awareness regarding risk factors and signs, and symptoms, thus helping in detection and management.<sup>12</sup>

In the present study, 61.9% responded Change in skin color could be a sign of breast cancer which is similar to the study done in Nigeria (50%)<sup>13</sup> and contrast to the study done in Saudi Arabia (12.4%).<sup>14</sup>



In this study, almost three fourth responded a lump in the breast could be a sign of breast cancer-77.4%. Similar findings are seen in the study done in Nigeria<sup>13</sup> and Ethiopia.<sup>15</sup> However, the findings contradict the study done in South Arabia<sup>16</sup>

One of the risk factors of breast cancer is positive family history, which is correctly responded to by 52.9% in the present study. Our findings are similar to the study done in Nigeria<sup>13</sup> and Jordan.<sup>17</sup> The findings are in contrast to the study done at Pakistan<sup>18</sup>, South Arabia<sup>16</sup>, and South India.<sup>19</sup>

A study conducted among the Pakistani female cohort towards breast cancer<sup>18</sup> showed 81.1% responded to breast cancer can be present in absence of pain whose findings are similar to the present study. But the result is contradicting to the findings of the study done among rural women in Telangana, South India.<sup>19</sup> There is still a false perception among 87.7% of participants that breast cancer is communicable, which is different in the South Indian study (29.3%).<sup>19</sup>

In response to risk factors, 13.5% responded menarche at an early age causes breast cancer which is similar to the study of South India.<sup>19</sup> However, the findings were higher in the study done in Jordan<sup>17</sup> and Pakistan.<sup>18</sup> Also, it is quite lower in the Ethiopian study<sup>15</sup>

In the present study, 37.4% responded to alcohol consumption as a risk factor for breast carcinoma, whose findings are similar to the study done in Ethiopia (32.7%)<sup>15</sup> and it's unlike the findings of Jordan's study (72.9%). The difference in the findings could be due to the study population. The study population in our study is all reproductive age group female students where 11.6% were illiterate, but in the

study in Jordan, all the participants were pharmacists.

In this study, 78.1% responded who has breastfed child is not at risk of breast carcinoma not to breastfeed as a risk factor of breast carcinoma, which is similar to the study of Saudi Arabia (52.7%)<sup>16</sup>, Western Nepal (49.4%)<sup>20</sup> however, it is unlike the Ethiopian study (9.5%).<sup>15</sup>

Obesity is the risk factor for non-communicable diseases. In the present study, 39.4% responded to obesity as a risk factor. These findings are similar to the study done in Jordan (49%)<sup>17</sup> and South India (30%).<sup>19</sup> These findings are in contrast to the study of South Arabia (1.1%).<sup>16</sup>

In the present study, 58.7% had respondents who had satisfactory knowledge regarding breast carcinoma. The median knowledge level is 9/4. Similar findings were revealed by the study done in Jordan (85.8%)<sup>17</sup>, India (75.5%)<sup>21</sup>, Ghana (64.9%)<sup>22</sup>, Nepal (56.7%)<sup>23</sup>, South Arabia (47.9%)<sup>16</sup>, South India (45%)<sup>19</sup>, Gaza (44.2%)<sup>22</sup>. These findings area contrast to the study done in the Kingdom of Saudi Arabia (1.5%).<sup>12</sup>

A study done in Awareness of Breast Cancer Warning Signs and Screening Methods among Female Residents of Pokhara Valley, Nepal, showed Nepalese women had poor awareness of warning signs and symptoms.<sup>25</sup>

In the present study, There are associations between breast cancer knowledge level with occupation, educational status, marital status, monthly income. But there are no associations with other variables like age group, ethnicity, level of education, type of family, family history, presence of health worker in the family, any time involved, and neighbor

suffering. The various study conducted in Malaysia, Ethiopia, Northern Ethiopia revealed the association of knowledge level with educational status<sup>(26,15)</sup>, occupational status<sup>(15,27)</sup>, income<sup>(15,28)</sup> which is consistent with the present study. Similar to the present study, there is no association of positive family history<sup>16,15</sup>, educational level<sup>26</sup>, ethnicity, types of family, family history.<sup>20</sup>

The findings of the present study were contrary to study conducted by Khadiga F. et al., South Arabia Study, El Mhamdi S et al. in Tunisia, Befikadu Legesse et al. study in Northern Ethiopia, Michael N Okobia et al. study in Nigeria as there was the association of age group<sup>(16,29,30)</sup> and Occupation, Educational Level<sup>27,30</sup> with knowledge level.

In the present study, 34.2% knew about the screening method. Among them, 60.3%, 52.8%, and 39.6% had knowledge about BSE, CBE, and mammography, respectively. The findings differ from the study done among rural community women of India<sup>21</sup> and it was in total contrast with another study done in the Tribal Area of Raigad, India.

In the present study, a third had practised BSE, two-thirds had never practised it, and 62.7% practice it sometimes, 15.6% do it once a week, 27.4% do it once a month, and others in 1.9%. The practice of BSE is lower in different studies.<sup>(21,23,31)</sup> Unlike the present study, more than half of the respondents were able to do BSE.<sup>32</sup> A study done in the rural Community of India revealed only 12% practised it in the past year. However, their frequency of practice is similar to the present study.<sup>(21,33)</sup>

In the present study, there were different reasons for not practising BSE. 46.1% didn't feel the problem/not necessary, 31.7% were

unknown about the BSE technique. Different studies showed various reasons for lack of attention to BSE like forgetfulness, fear of finding a mass in their breasts, and others. Similar to this study, 33.4% of Iranian women did not know the correct approach to BSE.<sup>32</sup>

In the present study, 14.2% had practised Clinical Breast Examination at any time in past. The findings were similar to the study done among Arabic Women (13.8%) and only 8% in Indian study<sup>21</sup> and It is relatively low in 4.3% in Pokhara study.<sup>25</sup>

The findings of the current study regarding the reason for not practising CBE is almost half of respondents lacked information, 32.3% didn't feel the problem /not necessary. Almost no female was going to doctor for breast examination; the reasons were nobody recommended them to go to the doctor (79.60%) & they were not having any breast problems (20.40%)<sup>12</sup> which could be due to lack of information.

In the present study, only 12.3% had ever practised mammography. Indifferent general studies in India (4.5%)<sup>21</sup>, Malaysia (19%)<sup>34</sup> had shown low mammography practised. The study conducted in Nepal showed 100% of the respondents had never undergone mammography.<sup>23</sup> In the present study, the barriers for not practising mammography were 64.7% lacked information, 16.9% did not feel the need/not necessary, and the rest 18.3% had other reasons. A descriptive cross-sectional study conducted among 110 Nepalese women of the reproductive age group showed similar findings as that of the present study, where 58.2% were deprived of mammography due to a lack of knowledge about a mammography technique. Barriers to mammography, as reported by American



studies were embarrassment, low income, non-availability, and lack of health insurance coverage with comes under other reasons in our study.<sup>35</sup> Since mammography is expensive, and people don't prefer to go for it until there is a warning sign and symptoms.

## CONCLUSION

The study showed breast cancer knowledge among reproductive-aged women is more than half despite the fact that only few participants had practiced screening methods. The main factors influencing knowledge were occupation, education status, marital status, monthly income and family history. Breast cancer is the primary cause of cancer death among women globally, so prevention and early detection should be a major focus. In the present study, more than half of respondents had a satisfactory level of knowledge

regarding breast cancer despite the fact that that only a few participants had practiced screening methods. Hence, carrying out advocacy regarding breast cancer prevention and screening methods is not only an issue of necessity but the practice of screening methods should also be uplifted. There is a need to provide comprehensive, updated information and supportive interventions which could aim to increase knowledge as well as the practice of screening methods for breast cancer among reproductive-aged women. The screening methods should be made available and approachable for the services. More importantly, practical training on BSE should be provided so that women feel competent to carry out themselves, thus could help in the early detection of the disease and improving the breast cancer outcome.

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