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Original Research Article

Awareness and practice on breast cancer and breast self-examination among women residing in an urban area, Manipur: a cross-sectional study

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ABSTRACT

Background: Breast cancer accounts for nearly 18% of all female cancers worldwide, with over one million new cases diagnosed annually. Despite the potential benefits of early detection, the practice of breast self-examination (BSE) remains low. This study aimed to assess the knowledge and practice of breast cancer and BSE and their associated factors among women in an urban area of Manipur.
Methods: A community-based cross-sectional study was conducted among women aged ≥20 years residing in Langol, Manipur, from May to June 2024. A total of 300 participants were selected using cluster sampling and interviewed using a pre-tested semi-structured questionnaire. Data were analyzed using statistical package for the social sciences (SPSS) version 25. Chi-square test was applied to assess associations, with $p<0.05$ considered statistically significant.
Results: The mean age of participants was 36.6±10.97 years. Of the total, 81.3% had heard of breast cancer, but knowledge regarding symptoms and risk factors was poor. Only 32.7% had heard of BSE, and among them, 42% practiced it. However, regular practice was low. Factors significantly associated with awareness of breast cancer included age, education, and family history ($p<0.05$). Awareness of BSE was significantly associated with education, occupation, number of children, and prior awareness of breast cancer ($p<0.05$).
Conclusions: Although many had heard of breast cancer, there was inadequate awareness on breast cancer and BSE practice. Targeted health education interventions are essential to improve awareness and promote early detection practices.

Keywords: Breast cancer, Breast self-examination, Knowledge, Practice

INTRODUCTION

Breast cancer is one of the leading public health concerns globally and remains the most common cancer among women, accounting for approximately 18% of all female cancers.[1-3] Approximately 2.1 million new cases were diagnosed in the year 2023 and by 2030, the global burden of breast cancer is expected to exceed 2 million cases.[4] In India, it represents a significant proportion of cancer morbidity and mortality among women.[5,6] Several risk factors contribute to the development of breast cancer, including early menarche, late menopause, delayed childbirth, hormonal therapy, genetic predisposition, and lifestyle-related factors. Increasing urbanization and lifestyle changes have further contributed to its rising incidence.[7,8]

Unlike many other cancers, breast cancer can be detected early due to its occurrence in a noticeable organ.[9] According to Breast Health Global Initiative guidelines for low- and middle-income countries, diagnosing breast cancers early by promoting breast self-awareness, clinical breast examination and mammographic screening can reduce mortality associated with breast cancers.[10] Out of these methods, breast self-examination (BSE) is an easy, patient-centred, private, inexpensive, non-invasive,

reliable, and effective tool that can be performed by all women themselves.[11] American Cancer Society recommends that women should start BSE in their early 20s.[12] BSE may reduce the cancer-related mortality by as much as 18%.[13] However, almost all breast cancer cases in India are detected through clinical examination and hence, diagnosed at advanced stages which are usually associated with poor prognosis.[11,14]

Despite the advantages of BSE, studies indicate that awareness and practice of BSE remain low, especially in developing countries. Lack of awareness, fear, and socio-cultural barriers contribute to poor practice.[1,15-17] In Manipur, there is limited data regarding awareness and practice of BSE.

Hence, this study was conducted to assess knowledge and practice regarding breast cancer and BSE and to identify associated factors.

METHODS

Study design

A community-based analytical cross-sectional study was conducted in Langol area, Imphal West, Manipur, from May to June 2024.

Study population and eligibility criteria

Women aged ≥20 years residing in the study area who provided consent were included. Women with a history of breast cancer, pregnant or lactating women, mentally unstable individuals, and those unavailable during first visit were excluded.

Sample size and sampling method

A sample size of 300 was calculated using the formula, taking prevalence (p) as 26%.[18]

$$N = Z^2pq/d^2$$

Cluster sampling was used. Out of 10 localities, 3 clusters were selected randomly. Households were selected using the bottle-spinning method, and eligible participants were included until the required sample size was achieved.

Operational definitions

Breast cancer

A type of cancer that occurs in the breast tissue, in which the breast cells mutate and multiply.

Breast self-examination

A procedure that a woman does by herself at home to look for any change or lump in her breast tissue.

Risk factors for breast cancer

Factors that increase the chances of developing breast cancer.

Symptoms of breast cancer

A feeling of illness, experienced by oneself which may or may not be related to cancer.

Study tool

Data were collected using a pre-tested, semi-structured, interviewer-administered questionnaire covering socio-demographic details, knowledge of breast cancer, and knowledge and practice of BSE.[19-21]

Data collection procedure

Data were collected by trained investigators through face-to-face interviews in the local language after obtaining informed consent. All the eligible participants in a household were included. At the time of visit, if any house was found to be closed or there were no eligible participants in the house, the next household was chosen. Interview took around 15-20 minutes.

Statistical analysis

Data were entered in MS Excel and analysed using statistical package for the social sciences (SPSS) version 25. Descriptive statistics and Chi-square test were used. A p value <0.05 was considered statistically significant.

RESULTS

A total of 300 women participated in the study. The mean age was 36.6±10.97 years. Most participants were married (72.3%) and unemployed (64.7%) and 13.7 were illiterate, remaining studied till primary and above. Only 6% had a family history of breast cancer (Table 1).

Knowledge on breast cancer

Out of 300 participants, 244 (81.3%) had heard of breast cancer and multiple responses were given when asked about the source of information. However, knowledge regarding symptoms, risk factors, and detection methods was extremely poor, with nearly 98% lacking adequate information (Tables 2 and 3).

Awareness and practice on breast self-examination

Out of the total, only 98 (32.7%) had heard of BSE. Among them, 34.7% knew the correct starting age of 20 years and 36.7% knew the correct technique. Among those aware, only 42% practiced BSE, and regular monthly practice was reported by only 31.7% (Tables 4 and 5).

Table 1: Participants' background characteristics (n=300).

Variables		N	%
Age (years)	20-30	99	33.0
	31-40	97	32.3
	41-50	68	22.7
	51-60	36	12.0
Educational qualification	Illiterate	41	13.7
	Primary	85	28.3
	Secondary	85	28.3
	Graduate and above	89	29.7
Occupation	Unemployed	194	64.7
	Self employed	68	22.7
	Employed	38	12.6
Marital status	Unmarried	83	27.7
	Married	217	72.3
Family history of breast cancer	Yes	18	6.0
	No	282	94.0
No. of children they have	None	95	31.7
	1 or more	205	68.3

Table 2: Source of information on breast cancer (n=244).

Sources	N	%
Friends/relatives	60	24.3
Media	4	1.6
Health personal	4	1.6
Can't remember	179	72.5

Barriers to BSE

Out of 98 participants, 57 (58%) did not palpate their breasts and common reasons for not practicing BSE included: fear of detecting a lump, shyness, lack of awareness, and perceived lack of necessity (Figure 1).

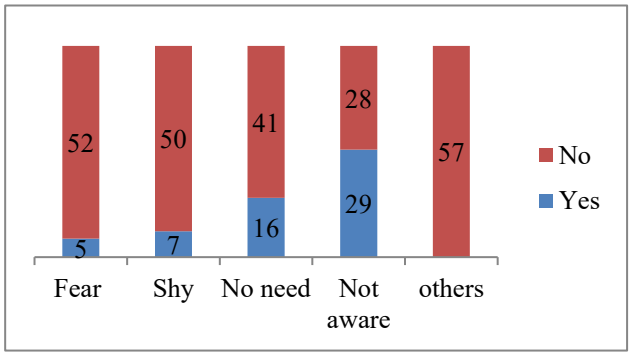

Figure 1: Reasons for not palpating breast (n=57).

Awareness of breast cancer was significantly associated with age, educational status and family while awareness of BSE was significantly associated with education, occupation, number of children and prior awareness of breast cancer (Tables 6 and 7).

Table 3: Distribution of participants based on knowledge on breast cancer (n=244).

Knowledges	Yes (N)	No (N)	Don't know (n)
Symptoms			
Nipple discharge	2	4	238
Enlargement one breast	0	6	238
Lump in breast	6	2	236
Axillary lump	0	6	238
Breast retraction	0	6	238
Nipple retraction	0	6	238
Pain in breast	0	6	238
Risk factors			
Previous breast cancer	0	6	238
Hormone replacement therapy	2	4	238
Overweight	0	6	238
Family history	1	5	238
Having children late in life or not at all	5	1	238
Not breast feeding	6	0	238
Early menarche	0	6	238
Alcohol/smoking	0	6	238
Can breast cancer be detected early	1	6	237
Methods of detection of breast cancer			
BSE	1	5	238
Clinical	7	1	236
Ultrasound	0	0	244
Mammography	0	1	243

Table 4: Distribution of participants based on knowledge on breast self-examination (n=98).

Knowledge on BSE	N	%
Correct age of starting breast self-examination (years)		
13	11	11.2
20	34	34.7
30	14	14.3
Don't know	39	39.8
Technique of breast self-examination		
Yes	36	36.7
No	62	63.3

Table 5: Distribution of participants based on practice on breast self-examination (n=41).

Frequency of breast palpations	N	%
Once a year	8	19.5
More than once a year	12	29.2
Monthly	13	31.7
More than once a month	8	19.5

Those with age group of 20-30 years, graduate and above and with family history of breast cancer have heard of breast cancer and this association is statistically significant.

Participants who are graduate and above, employed, with 1 or more children and those who have heard of breast cancer also have heard of breast self-examination and this association is statistically significant.

Table 6: Association between variables of interest and heard of breast cancer (n=300).

Background characteristics		Heard of breast cancer		P value
		Yes, N (%)	No, N (%)	
Age group (years)	20-30	87 (36)	12 (21)	0.02
	31-40	82 (34)	15 (27)	
	41-50	48 (20)	20 (36)	
	51-60	27 (11)	9 (16)	
Educational qualification	Illiterate	28 (12)	13 (23)	0.00
	Primary	63 (26)	22 (39)	
	Secondary	67 (28)	18 (32)	
	Graduate and above	86 (36)	3 (5)	
Occupation	Unemployed	158 (81)	37 (19)	0.25
	Self-employed	52 (77)	16 (24)	
	Employed	34 (92)	3 (8)	
Family history of breast cancer	Yes	18 (100)	0 (0)	0.04
	No	226 (80)	56 (20)	
No. of children	None	82 (34)	13 (23)	0.13
	1 or more	162 (66)	43 (77)	

P value <0.05 statistically significant

Table 7: Association between variables of interest and heard of breast self-examination (n=300).

Background characteristics		Heard of breast self-examination		P value
		Yes, N (%)	No, N(%)	
Age group (years)	20-30	34 (35)	65 (32)	0.31
	31-40	36 (37)	61 (30)	
	41-50	16 (16)	52 (26)	
	51-60	12 (12)	24 (12)	
Educational qualification	Illiterate	7 (7)	34 (17)	0.00
	Primary	16 (16)	69 (34)	
	Secondary	33 (34)	52 (26)	
	Graduate and above	42 (43)	47 (23)	
Occupation	Unemployed	57 (29)	138 (71)	0.00
	Self-employed	20 (29)	48 (71)	
	Employed	21 (57)	16 (43)	
Family history of breast cancer	Yes	7 (7)	11 (61)	0.56
	No	91 (93)	191 (95)	
No. of children	None	41 (42)	54 (27)	0.01
	1 or more	57 (58)	148 (73)	
Heard of breast cancer	Yes	90 (37)	154 (63)	0.00
	No	8 (14)	48 (86)	

P value <0.05 statistically significant

DISCUSSION

The study highlights a significant gap between general awareness and detailed knowledge of breast cancer. While a majority had heard of breast cancer, understanding of symptoms, risk factors, and early detection methods was inadequate. Majority of participants who had heard of breast cancer belonged to younger age group of 20–30 years and were graduate or above. The findings are consistent with study by Dahiya et al showing that younger and more educated women have better awareness.[22]

A striking finding of the present study was that 98% of participants were unaware of the risk factors of breast cancer. This is considerably lower compared to findings from studies by Dahiya et al, where awareness regarding

family history as a risk factor was reported to be 60% and 27.6%, respectively.[22,23] Furthermore, only 2.5% of participants in our study were aware of the protective role of breastfeeding against breast cancer which is notably lower than the 67% reported by Yadav and 16.9% by Puri.[24,25] These differences may be due to difference in educational qualification. Additionally, none of the participants in the present study recognized early menarche as a risk factor, which aligns with findings from Bala et al, where only 1% of participants had such knowledge.[23] Similarly, no participant identified smoking as a risk factor for breast cancer while a study by Somdatta et al found that 20% of participants acknowledged smoking as a contributing factor.[26]

Awareness of breast cancer symptoms was also found to be extremely poor, with almost all participants lacking knowledge in our study. Comparable findings were reported by Baburajan et al in South India, where 81% of women were unaware of even a single symptom of breast cancer.[27] This lack of symptom awareness may contribute to delays in seeking medical care and late-stage diagnosis.

Knowledge and practice of BSE were also inadequate. In the present study, only one participant was aware that BSE could aid in early detection of breast cancer. In contrast, Dahiya et al reported that nearly three-fourths of participants believed in the role of BSE in early diagnosis.[22] However, even in that study, actual practice was limited, with only about half of the participants performing BSE, and with inconsistent frequency. Similarly, in our study, although 42% of participants who had heard of BSE reported practicing it, regular practice was low, with only 31.7% performing it monthly and 19.5% annually.

Other studies also reflect similar trends. Baburajan et al reported that most women (85.1%) had never heard of BSE, and among those who had heard, knowledge regarding correct frequency was lacking.[27] Less than 10% had performed BSE in the previous six months, and none practiced it monthly. Likewise, Puri et al found that while 33% of participants were aware of BSE, only 8.2% knew the correct method of performing it.[25]

The present study further revealed that although 81.3% of participants had heard of breast cancer, only 32.7% were aware of BSE, and among them, less than half practiced it. Even among younger and more educated participants, awareness regarding symptoms, risk factors, and early detection methods was notably poor. These findings highlight a critical gap between general awareness and in-depth knowledge, which is essential for effective prevention and early diagnosis. Similar misconceptions regarding the correct age to initiate BSE were also observed in studies such as that by Polishwala et al, where although around 85% of respondents had heard of BSE, many lacked accurate knowledge regarding its initiation, frequency, and timing—even among healthcare workers.[28]

Strengths and limitations

This study is novel in the state context, assessing awareness of breast cancer, awareness of BSE, and its practice simultaneously. It also explores age-wise variations, aiding identification of target groups for interventions. Exclusion of participants with a history of breast cancer reduces overestimation of awareness and practice levels, while exclusion of pregnant and lactating women minimizes misclassification of breast palpation practices. However, the study was conducted in a single urban area, limiting generalizability. Its cross-sectional design restricts assessment of temporal changes and causal relationships. Additionally, reliance on self-reported data may introduce recall bias.

CONCLUSION

There is inadequate knowledge of breast cancer and breast self-examination along with its poor practice, although many had heard of breast cancer. There is a need for targeted community-based interventions to improve awareness, promote regular BSE practice, and facilitate early detection. More studies may be recommended with larger populations and assess behavioural changes over time.

Recommendations

Further large-scale and diverse studies are needed. Longitudinal designs are recommended to assess changes in BSE practices over time. Age-stratified analyses and strengthened community-based awareness programs are also suggested.

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