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Original Article

Knowledge, Attitudes, and Beliefs About Breast Cancer and Barriers to Breast Self-Examination Among Sikkimese Women

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Abstract

Objectives: The objectives of this study are to assess women's awareness on breast cancer; and their awareness, attitudes, and barriers to practice of breast self-examination (BSE). **Methodology:** This cross-sectional study was conducted from May 1, 2015 to June 30, 2015, involving 302 women between 18 and 65 years of age attending the Outpatient Department of Central Referral Hospital, Gangtok. Face-to-face semi-structured questionnaire-based interview was conducted among the participant women, after taking their written consent. **Results:** Three-fourths of the participants were aware of breast cancer. Eighty percent of the women who had heard about breast cancer were not aware of its risk factors. Forty-six percent of the participants were aware of BSE. Most common source of knowledge was from health professionals. Of the 138 women who were aware of BSE, 41.3% ever practiced BSE. Majority had started BSE between 21 and 45 years of age. Thirty-seven percent of the participants practiced BSE once in a year. Working women and students were found to be twice more likely to practice BSE compared to homemakers. Similarly, women belonging to lower socioeconomic status were 70% less likely to practice BSE than women of affluent class. **Conclusions:** Knowledge of the breast cancer and BSE practices is poor among indexed Sikkimese reproductive women attending tertiary hospital of Sikkim. There is an urgent need for information on the airwaves and in print, and for education at health centers on warning symptoms of breast cancer and various methods of screening for breast cancer including BSE.

Keywords: *Breast cancer, breast self-examination, knowledge, screening*

Introduction

Breast cancer is a major public health problem and the most commonly diagnosed cancer for women worldwide,[1-3] with >1 million new cases are diagnosed annually.[4] Breast cancer has been reported recently to account for 23% of all new cancer cases and 14% of all cancer deaths. Half of the cases and 60% of deaths happen in economically developing countries.[5]

In India, breast cancer accounts for 19%–34% of all cancer cases and rated as second-most common cancer among females.[6] The incidence of breast cancer is gradually overtaking cancer of the cervix, which is the most common cancer in females in India. However, according to national cancer registries, it is the most common cancer among women in many cities in India including Delhi, Mumbai, and Kolkata.[7] In Sikkim among ethnic Nepali community, it is the most common cancer among females.[8] Usually, it is after the age of 45 years that breast cancer develops; however, current evidence is suggestive of decreasing age of onset.[9]

Most of the patients seek medical advice when the disease is fairly advanced. An estimated 20%–30% of Caucasian women wait for at least 3 months before seeking help for breast cancer symptoms[10] compared with over 70% of Indian women presenting with advanced stages resulting in poor survival and high mortality rates.[7]

A number of studies reported the early detection of breast cancer by screening is an effective way to improve the patients' prognosis.[11,12] However, early detection through mammography is not feasible for economically developing countries and therefore, breast self-examination (BSE) and promotion of awareness of early signs and symptoms are recommended for these countries.[5] Some authors argued that BSE is the only realistic approach to early detection of breast cancer in developing countries as it is simple and

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cost-effective.[13] Furthermore, BSE familiarize woman with both the appearance and the feel of their breasts and help detection of any abnormal changes in breasts as early as possible and raise the awareness about early detection of breast cancer, particularly among women living in rural areas.[9]

Women's choice of not performing BSE is complex, thus more specific information is needed about what kind of knowledge and what specific health perception determines the performance, taking into account the significant demographic factors of this region.

Women's knowledge of breast cancer risk factors, symptoms, and BSE, a practice has been studied in Western countries.[14-18] However, no studies have been employed among Sikkimese women to examine their knowledge of risk factors, symptoms associated with breast cancer, their attitudes and practices, and barriers towards BSE.

Methodology

Sikkim, which is located in the Eastern Himalayas, became the 22nd state of the Indian Union. The Central Referral Hospital (CRH) is the teaching hospital of Sikkim Manipal Institute of Medical Sciences, who's Institutional Ethics Committee, approved the study.

This cross-sectional study was conducted from May 1, 2015 to June 30, 2015, with women between 18 and 65 years of age attending the Outpatient Department of CRH.

Women were approached to participate in the interview if they were aged between 18 and 65 years, irrespective of the reason for their visit. Only those who were too ill to answer were excluded from the study. All the participants provided written and informed Consent.

A face-to-face semi-structured questionnaire-based interview was conducted among the participant women with a fixed list of questions in a standard sequence. The questions were both closed and open ended. The interview was conducted in a private atmosphere in their preferred language which lasted for about 10–15 min.

The questionnaire included questions regarding the participants' sociodemographic characteristics, knowledge of Breast cancer-its risk factors and symptoms, BSE, and practice of breast self-examination. Perceived barriers to practice of BSE were also assessed. For assessing the socioeconomic status, Modified Kuppuswamy Scale (Modified June 2012) was employed.

Pretesting of the questionnaire was done among 20 participants women before the actual study commenced and necessary changes were made accordingly.

The collected data were thoroughly checked, then entered in an Excel Spreadsheet (Microsoft, Redmond, WA, USA) for analysis. The method consisted of transcription, preliminary data inspection, and interpretation. Data were analyzed using Graph PadInsat version 3 (GraphPad Software, La Jolla, CA, USA). Descriptive statistics were analyzed by the Chi-square test, with $P < 0.05$ considered significant. Univariate analysis was also performed, followed by multivariate binary logistic regression analysis.

Results

A total of 340 consecutive women were approached of which 302 consented to participate in the survey, with a response rate of 88.8%. Majority of the women interviewed were between 21 and 35 years of age (56%), married (62.6%), Hindu by religion (63.6%), belonged to nuclear family (59.6%), and were from urban area (58.6%). Table 1 presents the sociodemographic characteristics of the participant women.

Three-fourths (75%) of the participants women were aware of breast cancer and heard about it when described. Eighty percent of the women who had heard about breast cancer were not aware of any risk factors of breast cancer while only 9% (n = 20) identified improper breastfeeding, 4% (n = 10) family history of breast cancer, and only four women identified smoking as probable risk factor of breast cancer [Table 2].

When enquired about the symptoms of breast cancer, only 28.6% (n = 65) replied painless breast lump, 8% (n = 18) said change in shape of breast, 5% (n = 11) said pain in breast region, six women told nipple discharge/bleeding, and only two women told nipple inversion or pulling as symptoms of breast cancer [Table 2].

Table 3 presents the unadjusted associations between participants' demographic profile and results of multivariate analysis of selected independent variables and their associations with awareness of breast cancer among the surveyed women. Older women were less aware of breast cancer; however, this finding was not statistically significant ($P > 0.05$). Factors which significantly determined the awareness of breast cancer were marital status, education, and working urban women with higher economic status ($P < 0.0001$) [Table 3].

Table 4 shows the knowledge and practice of BSE among the participants.

When the question of whether they were aware of BSE was asked to the participants, 46% (n = 138) replied that they were aware of it. Most common source of knowledge were from health professionals (doctors and nurses 27.5%, n = 38), friends and relatives 26.1% (n = 36). Twelve percentage women heard about BSE from print media while eight women heard about from medical books and only 5% women heard about it from electronic media (TV, radio).

Of the 138 women (46%) who were aware of BSE, 41.3% (n = 57) ever practiced BSE. Majority (54.4%, n = 31) had started BSE between 21 and 45 years of age

Table 1: Sociodemographic characteristics of 302 women of reproductive age from the state of Sikkim, India, who consented to participate in the survey

Characteristics	*n* (%)
Age (years)	
<20	57 (18.9)
21-35	169 (56.0)
36-50	60 (19.9)
>50	16 (5.3)
Marital status	
Unmarried	111 (36.8)
Married	189 (62.6)
Separated	2 (0.6)
Family type	
Nuclear	180 (59.6)
Joint	122 (40.4)
Religion	
Hindu	192 (63.6)
Muslim	6 (2.0)
Christian	27 (8.9)
Buddhist	76 (25.2)
Others	1 (0.3)
Residence	
Urban	177 (58.6)
Rural	125 (41.4)
Education	
Illiterate	17 (5.6)
Primary <5th standard	20 (6.6)
Secondary/postsecondary <12th	135 (44.7)
>12th	130 (43.0)
Occupation	
Homemaker	128 (42.4)
Working	139 (46.0)
Student	35 (11.6)
Socioeconomic status	
Lower	4 (1.3)
Upper lower	14 (4.6)
Lower middle	110 (36.4)
Upper middle	173 (57.3)
Upper class	1 (0.3)

while 38.6% (n = 22) started before the age of 20 and only four women (7%) started BSE after the age of 45. Thirty-seven percent had BSE once in a year and one-third practiced BSE every quarter of a year.

Table 5 depicts the relationship of practice of BSE between participants' demographic profile, and results of multivariate analysis of selected independent variables and their associations with BSE among the participated women. Women's marital status, level of education, occupation, and socioeconomic status were found to be a significant predictor of practice of BSE. Working women and students were found to be twice more likely to practice BSE compared to homemakers. Similarly, women belonged to lower socioeconomic status were 70% less likely to practice BSE than women of affluent class [Table 5].

Table 2: Knowledge of breast cancer - its risk factors and symptoms among 302 women from the state of Sikkim

	n (%)
Awareness of breast cancer	
Ever heard of breast cancer	227 (75.1)
Never heard of breast cancer	75 (24.83)
Do you know risk factors of breast cancer (n=227)?*	
Don't know	183 (80.6)
Improper breastfeeding	20 (8.8)
Family history of breast cancer	10 (4.4)
Smoking	4 (1.8)
Alcohol	3 (1.3)
Oral pills	2 (0.9)
Older age	1 (0.4)
Large breasts	1 (0.4)
Late menopause	1 (0.4)
Others	2 (0.9)
Do you know symptoms of breast cancer? (n=227)*	
Do not know	116 (51.1)
Painless breast lump	65 (28.6)
Change in shape of breast	18 (7.9)
Pain in the breast region	11 (4.8)
Nipple discharge/bleeding	6 (2.6)
Bruising of breast	3 (1.3)
Nipple inversion/puling	2 (0.9)
Others	6 (2.6)

*Multiple answers were allowed

Of the women who were aware of BSE, majority (58.7%, n = 81) had never practiced BSE. Most common reason offered for not doing so were that they did not feel it necessary (60.5%, n = 49) said. Twenty percent (n = 17) admitted that they did not have knowledge of BSE. For women (4.9%) blamed their family physician for not telling to do so, while 3.7% (n = 3) women feared of detecting cancer and equal number of women offered discomfort as the reason for not doing BSE [Table 4].

Discussion

The findings of the present study suggests poor level of knowledge among Sikkimese women and abysmal level of ignorance about risk factors and common symptoms of breast cancer among the representative sample women of East Sikkim which are mostly inhabited by urban and educated people. The poor level of knowledge found in this survey is similar to reports from other Indian states.[19-22] In their study, Sharma *et al*.[22] found Knowledge about breast cancer was present in less than half (43.67%) of the participants. Their knowledge about the symptoms of breast cancer was poor. Very few participants (21.37%) knew that breast cancer presents commonly as a painless breast lump. Although three-fourths of the surveyed women claimed to be aware of breast cancer, 80% of them were not aware of any risk factors of breast cancer while only 28.6% could identify that painless breast lump may be a warning symptom of breast cancer. Very few of the

Table 3: Unadjusted associations and results of multivariate modeling/binary logistic regression analysis to determine factors independently associated with awareness of breast cancer among reproductive women in East Sikkim, India (*n*=302)

Demographic characteristics	Aware of breast cancer, *n* (%)	Not aware of breast cancer, *n* (%)	*P*	OR	95% CI
Age					
<20	46 (80.7)	11 (19.3)	>0.05	1.90	0.82-4.42
21-35	127 (75.1)	42 (24.9)		1.37	0.73-2.59
36-50	44 (73.3)	20 (33.3)		1	
>50	10 (62.5)	6 (37.5)		0.76	0.24-2.37
Marital status					
Unmarried/separated	102 (90.3)	11 (9.7)	<0.0001	0.22	0.10-0.43
Married	125 (66.1)	64 (33.9)			
Family type					
Nuclear	147 (81.7)	33 (18.3)	<0.05	2.34	1.38-3.98
Joint	80 (65.6)	42 (34.4)			
Religion					
Hindu	150 (78.1)	42 (21.9)	>0.05	1	
Christian	22 (81.5)	5 (18.5)		1.23	0.44-3.45
Buddhist	51 (67.1)	25 (32.9)		0.57	0.32-1.03
Muslim and others	4 (57.1)	3 (42.9)		0.37	0.08-1.73
Residence					
Urban	147 (83.1)	30 (16.9)	<0.05	2.76	1.61-4.71
Rural	80 (64.0)	45 (36.0)			
Education					
Illiterate	4 (23.5)	13 (76.5)	<0.0001	1	
Primary <5th standard	4 (20.0)	16 (80.0)		0.81	0.17-3.90
Secondary/postsecondary <12th	97 (71.9)	37 (27.4)		8.52	2.61-27.81
>12th	122 (93.8)	8 (6.2)		49.56	13.11-187.36
Occupation					
Homemaker	70 (54.7)	58 (45.3)	<0.0001	1	
Working	125 (89.9)	14 (10.1)		7.40	3.9-14.2
Student	32 (91.4)	3 (8.6)		8.84	2.6-30.4
Socioeconomic					
Lower class	73 (57.0)	55 (75.3)	<0.0001	5.88	3.28-10.52
Upper class	154 (88.5)	20 (11.5)			

BSE - Breast self-examination; OR - Odds ratio; CI - Confidence interval

surveyed women were able to identify nonlump presenting symptoms of breast cancer. Similar level of poor awareness was reported from other low-income countries.[23] In their study, Uche[23] from Nigeria reported only 32% of the women having knowledge of breast lump as a warning sign for breast cancer, 58.5% being unaware of most warning signs, and only 9.8% knowing methods of detecting breast cancer.

Majority of the participants in the present study were not aware of BSE as a screening tool for detecting breast cancer. In their study by Sharma *et al*.,[22] among South Indian women, only 43.2% women were aware of BSE. Even professional health workers such as nurses were reported to have low knowledge scores and awareness about BSE as reported by Odusanya and Tayo[24] from Nigeria.

This poor level of knowledge reported in the present study and other low-income countries contradicts other international reports from high-income countries. Grunfeld *et al*.[25] from the United Kingdom reported that 90%, 70%, and 60% of women, respectively, were able to quantify the relative risk of breast cancer associated with family history, previous history of breast cancer, and smoking, respectively. They also found that over 70% of the surveyed women were able to identify painless breast lump, lump under the armpit, and nipple discharge/bleeding as symptoms of breast cancer. In the our survey, a dismal 4.4% and 1.8% of women, respectively could identify family history of breast cancer and smoking as risk factor for breast cancer.

Our study revealed knowledge of symptoms was poorer among older women and this is quite worrying as risk of breast cancer increases with advancing age. Similar observations were made by Grunfeld *et al*.,[25] who found that older British women demonstrated poorer knowledge of risk factors for breast cancer. Older women may less

Table 4: Knowledge and practice of breast self-examination among the participants (*n*=302)

Items	*n* (%)
Are you aware BSE? (*n*=302)	
Yes	138 (45.69)
No	164 (54.3)
Source of knowledge (*n*=138)*	
Doctor, nurse	38 (27.5)
Friends	36 (26.1)
Newspaper	16 (11.6)
Medical text book	8 (5.8)
Television	7 (5.1)
Others	33 (23.9)
Practice of BSE (*n*=138)	
Ever practiced BSE? (*n*=138)	
Yes	57 (41.3)
No	81 (58.7)
Starting age of BSE (*n*=57)	
<20 years	22 (38.6)
21-45 years	31 (54.4)
After 45 years	4 (7.0)
Frequency of BSE (*n*=57)	
Once a month	19 (33.3)
Once in 3 months	7 (12.3)
Once in 6months	10 (17.5)
Once a year	21 (36.8)
Barriers to BSE (*n*=81)*	
Did not feel necessary	49 (60.5)
Lack of knowledge/awareness	17 (21.0)
Never told by a doctor	4 (4.9)
Fear of detecting cancer	3 (3.7)
Feel discomfort	3 (3.7)
Others	4 (4.9)

*Multiple answer allowed as depicted in legend. **Multiple answers were allowed. BSE - Breast self-examination

likely to perceive nipple eczema, changes in the shape or size of the breast, and nipple retraction as symptoms of breast cancer. It is possible that older women may attribute such symptoms to the aging process, as has been reported previously for other symptoms. Furthermore, older women may have a number of symptoms of other illnesses, may not seek help for symptoms that are not causing them pain. That's why older women, in particular, should be provided with further educational information regarding the potential seriousness of breast changes; BSE and recommendation for action if they identify any warning symptoms.

Our survey indicated that education, marital status, occupation, and socioeconomic status significantly influenced knowledge of breast cancer. Education was the most significant predictor ($P < 0.0001$) of awareness of breast cancer. Other demographic variables including age and religion were not significantly related to knowledge. Similar observations were made by Grunfeld *et al*.[25] in high-income countries and Sharma *et al*.[22] in South Indian women.

Screening practice was very low in our study. Only 41.3% women ever practiced BSE. This is similar with observations with other researchers. A high level of practice of BSE had been observed in developed nations. In a survey of practice of BSE among black women in the US, Jacob *et al*.[26] reported that 89% of respondents indicated practicing BSE during the past year, with 74% indicating having done so during the past 6 months.

Research has shown that regular practice of BSE increases the probability of detecting breast cancer at an early stage.[27] Routine breast cancer screening is currently not being practiced in Sikkim and India.[8,22] In addition, some other cultural factors may operate against routine breast cancer screening. Given the nonavailability of mammography in Sikkim and also lack of adequate data to justify mammography screening and the high cost and skilled expertise required for the procedure, current efforts at breast cancer screening in Sikkim and India must rely on a combination of BSE and CBE. Women should be taught the techniques of monthly BSE and nurses, midwives, and other healthcare providers should be urgently be trained and involved to assist physicians in counseling and teaching about BSE to women and also in performing clinical breast examinations.

Conclusions

Knowledge of breast cancer and screening practices are poor among indexed Sikkimese reproductive women attending tertiary hospital of Sikkim. This poor level of knowledge could potentially contribute to delay in seeking medical help. This is especially true for older women, who have a poor awareness both of the risk factors and the symptoms associated with the breast cancer. This poor level of knowledge is of particular concern; given the increased risk of developing breast cancer with advancing age, and may partly explain the increased delay behavior observed among women. Further research is needed, however, to explain the reasons for delay in seeking help and low level of screening practices in India and other low-income countries.

There is an urgent need for information on the airwaves and in print and for education at health centers and local health posts on warning symptoms of breast cancer and various methods of screening for breast cancer including BSE. Targeted government programs in India and other low-income countries on early detection methods of breast cancer should urgently be implemented at health centers and health posts, which would definitely reduce morbidity and mortality from breast cancer.

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Conflicts of interest

There are no conflicts of interest.

Table 5: Associations of sociodemographic characteristics' and practice of breast self-examination among reproductive women in Sikkim (*n*=302)

Characteristics	Ever practiced BSE, *n* (%)	Never practiced BSE, *n* (%)	*P*	OR	95% CI
Age					
<20	11 (19.3)	46 (80.7)	>0.05	1	
21-35	34 (20.1)	135 (79.9)		10.64	5.25-21.58
36-50 and above	12 (15.8)	64 (84.2)		7.93	3.36-18.71
Marital status					
Unmarried and separated	27 (23.9)	86 (76.1)	<0.05	1.66	0.93-2.98
Married	30 (15.9)	159 (84.1)			
Family type					
Nuclear	40 (22.2)	140 (77.8)	>0.05	1.77	0.95-3.29
Joint	17 (13.9)	105 (86.1)			
Religion					
Hindu	31 (16.1)	161 (83.9)	>0.05	1	
Christian	10 (37.0)	17 (63.0)		3.05	1.28-7.29
Buddhist	15 (19.7)	61 (80.3)		1.28	0.64-2.53
Muslim and others	1 (14.3)	6 (85.7)		0.86	0.10-7.42
Residence					
Urban	38 (21.5)	139 (78.5)	<0.05	1.53	0.83-2.80
Rural	19 (15.2)	106 (84.8)			
Education					
<12th standard	16 (9.3)	156 (90.7)	<0.0001	0.22	0.12-0.42
>12th standard	41 (31.5)	89 (68.5)			
Occupation					
Homemaker	14 (10.9)	114 (89.1)	<0.05	1	
Working	34 (24.5)	105 (75.5)		2.64	1.34-5.19
Student	9 (25.7)	26 (74.3)		2.82	1.10-7.21
Socioeconomic					
Lower class	12 (9.4)	116 (90.6)	<0.05	0.30	0.15-0.59
Upper class	45 (25.9)	129 (74.1)			

BSE - Breast self-examination; OR - Odds ratio; CI - Confidence interval

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