

RESEARCH ARTICLE

Knowledge and Practices Related to Screening for Breast Cancer among Women in Delhi, India

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Abstract

Background: Breast cancer is a major public health problem globally. The ongoing epidemiological, socio-cultural and demographic transition by accentuating the associated risk factors has disproportionately increased the incidence of breast cancer cases and resulting mortality in developing countries like India. Early diagnosis with rapid initiation of treatment reduces breast cancer mortality. Therefore awareness of breast cancer risk and a willingness to undergo screening are essential. The objective of the present study was to assess the knowledge and practices relating to screening for breast cancer among women in Delhi. **Methods:** Data were obtained from 222 adult women using a pretested self-administered questionnaire. **Results:** Rates for knowledge of known risk factors of breast cancer were: family history of breast cancer, 59.5%; smoking, 57.7%; old age, 56.3%; lack of physical exercise, 51.9%; lack of breastfeeding, 48.2%; late menopause, 37.4%; and early menarche, 34.7%. Women who were aged < 30 and those who were unmarried registered significantly higher knowledge scores ($p \leq 0.01$). Breast self-examination (BSE) was regularly practiced at-least once a month by 41.4% of the participants. Some 48% knew mammography has a role in the early detection of breast cancer. Since almost three-fourths of the participants believed BSE could help in early diagnosis of breast cancer, which is not supported by evidence, future studies should explore the consequences of promoting BSE at the potential expense of screening mammography. **Conclusion:** Our findings highlight the need for awareness generation among adult women regarding risk factors and methods for early detection of breast cancer.

Keywords: Breast cancer- knowledge- risk factors

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Introduction

Breast cancer is the second most common cancer among women in India (Kumar et al., 2000). Breast cancer incident rates in India show considerable variation with incident cases in urban India being almost twice that of rural India (National Cancer Registry Program, 2013). Social changes involving delayed marriage, lower fertility, decreased span of breastfeeding and the lifestyle changes which decrease physical activity and increase obesity are considered to be important risk factors which have fueled the spurt of breast cancer cases in India (Kumar et al., 2000). The International Agency for Research on Cancer estimated globally 1.67 million new breast cancer cases in 2012 and 5,20,000 deaths of which around 70,000 deaths occurred in India (Internal association of cancer registries).

Early diagnosis of breast cancer cases is known to improve outcome (Mayor, 2000). The detection of breast cancer in India is significantly delayed leading to diagnosis at advanced stages associated with poor prognosis which explains the disproportionately higher mortality rates among Indian women despite lower incidence of breast

cancer compared to that in developed nations like the USA (Dikshit et al., 2012). Reasons for this delay in seeking care and establishment of early diagnosis with prompt initiation of treatment have been ascribed to lack of awareness, poor healthcare seeking behaviour among women of low socioeconomic status and limited access to effective healthcare and referral services for management of the disease (Gupta et al., 2016). Good health literacy about breast cancer which promotes 'breast awareness' defined as 'a woman becoming familiar with her own breasts and the way that they will change throughout her life' helps the women to seek early medical care involving changes in her breast. Breast self-examination (BSE) is different from breast awareness and is instead a process of 'regular, repetitive monthly palpation to a rigorous set method performed by the woman at the same time each month' (Thorton et al., 2008). BSE by itself may not decrease breast cancer mortality but combined with enhanced breast awareness empowers women and increases their perception of susceptibility to risk of breast cancer thereby promoting their participation in effective screening procedures like mammography, Clinical

breast examination which increases early diagnosis and consequent reduction of mortality through timely initiation of treatment.

It is important to assess the existing knowledge and practices related to breast cancer and its screening in the general population in order to design and initiate effective health promotion strategies for protecting and reducing mortality against breast cancer arising from erroneous health seeking behaviour and poor of screening services. The objective of the present study was to evaluate the knowledge and practices concerning screening for breast cancer among adult urban women in Delhi, India and to ascertain the proportion of those women doing breast self-examination.

Materials and Methods

We conducted a cross sectional study at a large two-week health fair in New Delhi in October' 2016. A health post at the fair provided health education, free health checkup, certain free laboratory investigations.

The sample size for this study was estimated using Epi-info Version 7. Based on a previous study by Puri (2000) in which 16.9% participants were aware that breastfeeding was protective against breast cancer, the sample size at 95% confidence levels, and 5% margin of error was calculated to be 217. Taking into account, 10% non-response, the final sample size was estimated to be 239.

Adult women without previous history of breast cancer who consented were enrolled in the study through consecutive sampling. A pretested self-administered questionnaire was used to assess the knowledge of breast cancer among five domains relating to etiology and prognosis, risk factors, breast awareness, technique of self-breast examination and screening methods. The questionnaire was originally prepared in English after an exhaustive review of the literature and subsequently was translated into the local language, Hindi through a back and forth translation process. It was pretested in 20 adult women in Balmiki Basti urban health center in Central Delhi. Afterwards, a health talk focusing on cancer prevention was held at the study site for the general public including all the study participants.

The participants' response to each question relating to knowledge regarding breast cancer was allotted a score of 1 for every correct response. The knowledge score of the study participants was thereby calculated to be the cumulative total of correct responses and ranging from a minimum score of 0 to a maximum score of 33.

Statistical analysis was done using IBM SPSS Version 17. Results were expressed in frequency and percentage for categorical variables while quantitative variables were reported as mean and standard deviation. The presence of statistically significant difference between knowledge scores attained by the participants as per their sociodemographic categories was ascertained using the Mann Whitney test and Kruskal Wallis test for non-normal data.

Results

We contacted 290 women of whom 250 expressed willingness to participate in the study with a response rate of 86.1%. Among the 250 participants, a total of 28 submitted incomplete forms which were excluded from the study. A total of 222 women therefore participated in the study.

The mean age of the study participants was 30.1 ± 23.9 years. Majority of the participants had completed 15 years of education (59.4%). Students comprised 47.3%, homemakers 21.2% and skilled professionals 19.8% of the study subjects. Currently married women constituted 41.4% of the study subjects. Only 9 participants reported family history of breast cancer (Table 1).

The mean knowledge score of the study participants was 18.6 ± 11 . Significantly higher scores were obtained by women aged ≤ 30 years, unmarried women and those with family history of breast cancer ($p \leq 0.01$) (Table 1).

Knowledge regarding risk factors of breast cancer among the study participants is shown in Table 2. The correct responses of breast cancer risk factors were family history of breast cancer (59.5%), smoking (57.7%), old age (56.3%), lack of physical exercise (51.9%), lack of breastfeeding (48.2%), late menopause (37.4%) and early menarche (34.7%).

Knowledge regarding the signs of breast cancer showed that 67% knew that the pain or discharge from the breast or nipple as the sign of breast cancer. 57% of the respondents knew that breast lump is a cardinal symptom of Breast (Table 2).

The knowledge of breast cancer in the study participants varied through the domains with the knowledge of screening methods (Table 2). Breast cancer was reported as the most common cancer among women by 82.9% of the participants. It was observed that while 75.7%

Table 1. Distribution of Breast Cancer Knowledge Scores in Subjects

Variable	Number of subjects n (%)	Average knowledge score (0-33)	P value
Age (in years)			
≤ 30	146 (65.7)	20.6 ± 10.2	$< 0.001^a$
> 30	76 (34.3)	14.7 ± 11.6	
Education (completed years)			
10	22 (10)	12.55 ± 13.55	0.033 ^b
12	68 (30.6)	20.44 ± 9.9	
15 and higher	132 (59.4)	18.6 ± 10.9	
Marital status			
Unmarried	130 (58.5)	21.5 ± 9.6	$< 0.001^a$
Married	92 (41.4)	14.4 ± 11.7	
History of Breast Cancer in family			
Present	9 (4.5)	26.4 ± 11.3	0.015 ^a
Absent	213 (95.5)	18.2 ± 11	
Religion			
Hindu	195 (87.8)	18.3 ± 11.1	0.329 ^a
Other (Muslim/Christian/Sikh)	27 (12.2)	20.1 ± 11.7	

^a, Mann Whitney test; ^b, Kruskal Wallis test

Table 2. Knowledge of Breast Cancer in Subjects, Delhi, 2016

Knowledge of aspects of Breast Cancer	Correct Response n (%) (N = 222)
I. Breast Cancer etiology and prognosis	
i. It is the most common cancer in women	184 (82.9)
ii. It occurs more in old age	63 (28.6)
iii. It can be inherited	104 (46.8)
iv. It can present as painless breast lump	134 (60.4)
v. Early diagnosis improves treatment outcome	168 (75.7)
vi. It may be curable with early detection	151 (68)
II. Risk Factors of Breast Cancer	
i. Positive family history	132 (59.5)
ii. Unmarried or without children	98 (44.1)
iii. Old age	125 (56.3)
iv. Early menarche	77 (34.7)
v. Late menopause	83 (37.4)
vi. Non-lactating women (during lifetime)	103 (48.4)
vii. Consumption of fatty food	76 (34.2)
viii. Hormone replacement therapy	84 (37.8)
ix. Lack of physical exercise	93 (51.9)
x. Smoking	128 (57.7)
III. Signs of breast cancer	
i. Inverted nipples	93 (41.9)
ii. Puckering or dimpling of breast size	124 (55.9)
iii. Lump or thickening under armpit	130 (58.6)
iv. Change in size of breast or nipple	145 (65.3)
v. Dissimilarity in size of breast or nipple	137 (61.7)
vi. Pain in the breast or nipple	147 (66.2)
vii. Discharge from the breast or nipple	148 (66.7)
viii. Lump in the breast	127 (57.2)
IV. Aspects of Breast Self-Examination (BSE)	
i. It helps in early diagnosis	170 (76.6)
ii. It is recommended to be done monthly	122 (55)
iii. Suitable time to do BSE is 7 days after the start of menstruation	97 (43.7)
iv. It is done in front of mirror	129 (58.1)
v. Palm of the hand should be used while doing BSE	108 (48.6)
V. Screening Methods of Breast Cancer	
i. Mammography is a method of early detection	108 (48.6)
ii. Clinical Breast Examination is a method of early detection	69 (31.1)
iii. Mammography could discover a lump earlier than CBE	75 (33.8)
iv. Mammography recommended to start at the age of 50	45 (20.3)

participants believed that early diagnosis of breast cancer improved treatment outcomes only 48.6% were aware that mammography is a method for early detection. Only 20.3% (45) participants were aware of the recommended age for initiation of screening mammography.

The various source of information for Breast Self-examination among the participants were reported to be their doctor or physician by 30.2% (67), newspaper 15.8% (35), television 13% (39) and friends 7.7% (17).

Table 3. Screening Practices Relating to Early Diagnosis of Breast Cancer, Delhi, 2016

Practice / Response	n (%) (N = 222)
Regularly perform BSE	109 (49.1)
Frequency of practice of BSE	
i. Once in a month	92 (41.4)
ii. Once in 2 months	28 (12.6)
iii. 3-5 times in a year	23 (10.4)
iv. Once or twice a year	33 (14.9)
v. Never	46 (20.7)
Reason for not practicing BSE regularly* (N = 113)	
i. Unaware of the need	46 (20.7)
ii. Don't have any breast problem	55 (24.8)
iii. Don't think I should	11 (5)
iv. Don't feel like doing it	14 (6.3)
v. Don't know how to do BSE	55 (24.8)

*, Response not mutually exclusive

Regular practice of BSE was reported by 109 (49%) participants of which 92 (41.4%) were doing it regularly on at-least a monthly basis (Table 3).

Discussion

Knowledge of breast cancer, breast awareness and breast self-examination could improve the health seeking behaviour of women leading towards early reporting of symptoms, screening for breast cancer and increase chances of survival. Awareness deficit in breast cancer is associated with delayed reporting and higher mortality.

We found almost three fourths of the enrolled participants were aware that early diagnosis and initiation of treatment in breast cancer cases could cure the disease. The knowledge of early detection of breast cancer in our study is higher than that reported by Shaista and Madhavi (2016) in their study conducted in a tribal region in India who revealed only half of their participations being aware.

In the present study, the knowledge of breast cancer was significantly lower in women who had lower educational status (completed years of education being 10 or lower) ($p \leq 0.01$). Since the younger women in our study sample were more likely to possess higher educational attainments and also be married, the knowledge of breast cancer was also found to be higher in these groups.

Based on the strength of existing evidence, risk factors of breast cancer have been classified as those with sufficient evidence and those with insufficient evidence (Gupta et al., 2015). Among the risk factors with sufficient evidence, a majority (60%) of the participants in the current study correctly responded that family history of breast cancer increased the risk of developing breast cancer in females. Bala and Gameti (2011) in a study conducted among urban women in Ahmedabad city revealed 27.6% of their subjects were aware that family history increases breast cancer risk. However, the study by Shaista and Madhavi (2016) reported only 10% women were aware of importance of familial history in breast cancer while Sharma et al., (2013) in their study

among South Indian women reported only 13% women with this knowledge.

In our study 57% of the respondents knew that breast lump is a cardinal symptom of breast cancer. These results are almost similar to the study done by Puri et al., (2008) which reported awareness about breast mass as the cardinal symptom of breast cancer was known to 47.2% of the respondents.

In the present study, breast cancer risk factors relating to early menarche and late menopause were known by only one third of the women which is still higher than that revealed in the study by Bala and Gameti (2011) in whom just 1% of the respondents were aware of these risk factors. The study by Ahuja and Chakrabarti (2009) in Mumbai found only one fifth of their subjects being aware of early menarche to be a risk factor for breast cancer.

In the present study, lack of breastfeeding was correctly identified as a risk factor for breast cancer by almost half of the study subjects. Yadav et al., (2013) reported a higher awareness regarding protection provided by breastfeeding against breast cancer in 69% of their rural and 67% of their urban respondents in Haryana state. The study by Khokhar (2009) among school teacher in Delhi revealed that nearly all of their respondents believed that breastfeeding accorded protection against development of breast cancer. The study by Oza et al., (2011) among hospital nurses found almost four-fifths of their subjects expressing a similar view. However, in the study by Puri et al., (2008) only 16.9% of respondents were aware that lack of breast-feeding was a risk factor for breast cancer.

Among the risk factors with weaker evidence, almost 59% of the participants in our study believed that smoking was a risk factor for developing breast cancer. This is significantly higher compared to the study by Somdatta and Baridalyne (2008) in an urban resettlement colony which found only 20% reporting smoking as a risk factor. However, the study by Ahuja and Chakrabarti (2009) had found 78% of their subjects identifying smoking as a risk factor.

Sedentary lifestyle as a risk factor associated with breast cancer was known to 59% of the study participants in our study which is higher than 15% in the study by Ahuja and Chakrabarti (2009) and 9.1% by Puri et al., (2008).

Nearly three fourths of our study subjects believed that breast self-examination could help in early diagnosis of breast cancer while almost half of the subjects reported certain steps of Breast self-examination correctly. However, the actual practice of BSE was low with only half of the subjects reporting practicing BSE with frequency ranging from once a month in 41% subjects to once a year in 15%. In contrast, the study by Shaista and Madhavi (2016) reported almost half of their subjects to be aware of BSE but mostly lacking knowledge or the correct techniques required for performing BSE. Another study done by Chaudhary et al., (1998) revealed that only 12% of the participants practiced BSE monthly. Puri et al., (2008) reported the awareness of breast self-exam was present in 33% of their subjects but correct method was known to only 8.2% of them.

The results of our study suggest that educational

attainments had been associated with the higher knowledge of breast cancer and breast awareness while relatively lower educational status was associated with awareness deficit. This corroborates the evidence from multiple Indian studies which found relatively higher knowledge of breast cancer among populations with higher educational attainments like urban women, school teachers and nurses (Ahuja and Chakrabarti, 2009; Khokhar, 2009; Oza et al, 2011). Similarly, since the mean years of completed education of the study subjects in the present study was higher compared to the national average, the results of the study may not be generalizable to the Indian population belonging to the lower socioeconomic background with lower educational status. This further indicates that IEC campaigns in the media relating to breast cancer awareness are inadequate and need to be reoriented towards targeting the vulnerable women with lower educational attainments.

The high gap between knowledge of BSE and actual practice by the women shows that acceptability of BSE is still low with almost one fifth of the participants in the current study have never been practicing it. We found that nearly three-fourths of the study participants believed that BSE helps in early diagnosis of breast cancer. On the other hand, mammography was considered as a vital modality for early detection of breast cancer by less than half (48.6%) of the participants. This gap in knowledge suggests that future studies should therefore explore whether adoption of BSE by women could potentially impart a false sense of security against development of breast cancer especially in those women who regularly practice BSE but are disinclined towards undergoing recommended screening using mammography and clinical evaluation. Health policy which promotes BSE at the potential expense of mammography may require a reassessment.

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