Breast cancer awareness among the female nursing staff in a tertiary care hospital

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Abstract

Context: Breast cancer has high morbidity and mortality rates due to late stage at diagnosis as patients usually present at an advanced stage. There is a lack of awareness about the symptoms and signs of breast cancer as well as the screening practices.

Aim: This study evaluates the level of knowledge of screening practices and risk factors in breast cancer among the female nursing staff in a teaching hospital.

Setting and Design: This was a descriptive cross-sectional study design.

Materials and Method: In this cross-sectional study that was performed in 2019, simple random sampling of 184 participants was done, and their responses of a validated questionnaire of breast cancer risk factor were scored.

Statistical Analysis Used: Descriptive statistics were used to summarize data.

Results: The mean knowledge and awareness score of the nurses who participated in the study with a total score of 35 is 13.059 with a standard deviation of 4.673 (13.059 ± 4.673). Nearly 12.5% of the nurses ($n = 23$) had good knowledge, 54.3% of the nurses ($n = 100$) had an average knowledge, while 33.2% of the nurses ($n = 61$) had poor knowledge scores in the study conducted.

Conclusions: Nurses had limited levels of knowledge about breast cancer and methods of early detection. The screening methods in breast cancer should be stressed during their training period at the institutional level with frequent updating of knowledge by conducting workshops and seminars.

Keywords: Awareness, Breast cancer, Knowledge, Nurses

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INTRODUCTION

Breast cancer is one of the most common cancers in women with about one in nine women developing the cancer in her lifetime.[1] Worldwide, it represents about a quarter (23%) of all malignancies in women. It is a most frequently occurring cancer in both developed and developing countries and accounts for 13.7% of cancer deaths worldwide.[2] The incidence in India is also increasing with the age-standardized incidence rate in India is 25.8/100,000 with a high mortality rate of 12.5/100,000.[3] A higher incidence is noted in the northeastern parts as well as metropolitan cities.[4] This is probably due to the variations in the level of education, age at first child birth, parity, anthropometric, and lifestyle factors, for example, adiposity, smoking, and use of alcohol, etc. Many times, the patients present at late stages, leading to increase in the morbidity and mortality. Lack of awareness regarding the risk factors as well as the screening practices, delay in diagnosis, and inadequate treatment facilities can all lead to an advanced stage at diagnosis. In a study of age-specific mortality rates and total deaths from specific cancers for the various regions and subpopulations of India, breast cancer was among the top three fatal cancers among women with the average age at diagnosis being 10 years younger than women in Western countries, and the incidence of cancer-related mortality being at least two times higher among the uneducated adults. The urban cancer registries have shown an increase in the incidence of breast cancer with an increase in the proportion presenting with localized breast cancer as compared to rural areas which suggests an enhanced awareness and screening.[5] Hence, it is important to increase the levels of cancer literacy in our country in the rural areas as well. Early detection of carcinoma breast gives the patient a better chance of survival and also reduces the associated morbidity. It is important to make the general public aware of the risk factors associated with breast carcinoma, remove the stigma and fear associated with the same, and engage them in effective screening practices for early detection of malignancy. Regular clinical breast examination (CBE) can play a vital role in downstaging a tumor in an asymptomatic woman.[2] There is no organized, systematic, government-funded screening program for breast cancer in India. In this context, nurses can play a pivotal role in educating the patients as well as the general population regarding the screening methods available. The incidence of carcinoma of breast among nurses was highest among those who had handled cytotoxic drugs, odds ratio (OR) = 1.65 (95% confidence interval [CI] 0.53–5.17), and the lowest were seen among nurses who had worked in primary health care, adjusted OR = 0.44 (95% CI: 0.20–0.96).[6] In another study to evaluate the role of night work as a potential occupational hazard among nurses for the development of breast cancer, it was found that there was a statistically significant increase of risk was observed in those who worked at night for 30 or more years, compared with those with no night work after graduation.[7] In various studies in the developing countries, nurses have demonstrated a poor to good knowledge regarding breast cancer. Only if they are knowledgeable, they will be able to educate the public as well as be aware if they themselves fall into an increased risk category. In our study, we proposed to test the knowledge of the staff nurses working in our hospital regarding the risk factors associated with breast cancer and the screening methods available.

Objectives
1. To assess the level of knowledge of breast cancer and the associated risk factors among the female nursing staff in our hospital
2. To assess the level of their awareness regarding breast cancer screening practices.

MATERIALS AND METHOD

Research design and setting
This descriptive cross-sectional study was conducted in the Justice K S Hegde Charitable Hospital among the 184 female staff nurses in 2019.

A questionnaire was prepared by the author using data from available literature and using questions after modification from other similar studies.[8-10] It was internally pre validated by seven subject experts in the pathology and one subject expert in community medicine departments for content validation. Reliability test scoring was not done on the questionnaire as most of the questions were related to information available in standard textbooks and were taken from standard articles after modification and were validated by subject experts. The questionnaire was distributed among the female nursing staff in a tertiary hospital. Participation was voluntary with no incentives proposed and confidentiality was ensured. The questionnaire had three parts – personal data; respondent's knowledge regarding breast cancer and associated risk factors; and their awareness of breast cancer screening methods. There were 25 items on the questionnaire. Each of the questions on knowledge regarding breast cancer and screening practices were equitably scored. Categorical answers (Yes/No/Don't know) were assigned one point for correct answer and zero points for incorrect/don't know response.

Inclusion criteria included

Being female staff nurses at the hospital and willing to participate in the study were included in the study.

Exclusion criteria included

Exclusion criteria were being unavailable due to changes in their shifts.

Sampling method

Simple random sampling was done of the female nursing staff at the hospital.

Sample size

A study conducted by Madhukumar *et al*.[11] showed that 58% knew about symptoms and 59% knew about the risk factors of breast cancer. Given that there are about 360 nursing staff in our hospital and expecting similar results, with relative precision of 5%, 95% CI, a minimum sample of 184 would be required. This was calculated using EpiTools epidemiological calculators[12] done on February 14, 2019.

Data analysis

Data collected from the questionnaire were analyzed using descriptive and inferential statistics.

Ethical clearance

Ethical clearance for the study was taken from the Institutional Ethics Committee of K S hedge Medical Academy, Mangalore. (Ethical committee registration code – EC/NEW/INST/2020/834 under National Ethics Committee Registry for Biomedical and Health Research', Department of Health Research) Besides consent for their participation in the study, the authors have also ensured the anonymity and confidentiality of the participants and maintained the ethical standards required in the preparation of the manuscript by avoiding plagiarism and multiple submissions.

RESULTS

General demographics

Among the 184 respondents analyzed, 83.69% were between the age of 20 and 30 years (*n* = 154) [Table 1]. Nearly 51.63% of the nurses were married, 65 (35.4%) were graduates or postgraduates, while the rest of them were diploma holders in their field. Among all respondents, 10 (5.4%) of them reported the presence of breast carcinoma among first-degree relatives.

Awareness regarding breast cancer

The awareness and perception of the respondents about the symptoms, risk factors, and methods of early detection

Table 1: Sociodemographic characteristics of the respondents (*n*=184)

Variables	Options	n (%)
Age (years)	20-30	154 (83.6)
	31-40	28 (15.2)
	41-50	2 (1.1)
Marital status	Married	95 (51.6)
	Unmarried	89 (48.4)
Educational qualification	B.Sc. nursing	50 (27.2)
	M.Sc. nursing	15 (8.2)
	Post basic B.Sc. nursing	24 (13)
	GNM (diploma)	95 (51.6)
Presence of breast carcinoma among relatives	Yes	10 (5.4)
	No	170 (92.4)
	Don't know	4 (2.2)

GNM: General nursing midwifery

Table 2: Awareness of the respondents regarding breast cancer (*n*=184)

Awareness/perception	n (%)
Symptoms of breast cancer	
Lump in the breast	111 (60.3)
Ulcer over the breast	36 (19.6)
Nipple discharge	71 (38.6)
Lump in axilla	41 (22.3)
Risk factors of breast cancer	
Age	30 (16.3)
Diet and exercise	38 (20.7)
Age at parity	32 (17.4)
Family history	91 (49.5)
Early age at menarche	26 (14.1)
Nulliparity	27 (14.7)
Drug history (especially oral contraceptives)	22 (11.9)
Don't know	4 (2.2)
Methods for early detection of breast cancer	
BSE	123 (66.8)
Examination by a doctor	53 (28.8)
Mammogram	62 (33.7)
Biopsy	24 (13)
Fine-needle aspiration cytology	21 (11.4)
Age at which breast cancer commonly presents (years)	
10-19	2 (1.1)
20-29	32 (17.4)
30-39	65 (35.3)
After 40	78 (42.4)
Don't know	7 (3.8)
Does breast cancer affects only females	
Yes	127 (69)
No	47 (25.5)
Don't know	10 (5.5)

BSE: Breast self-examination

of breast cancer are summarized in Table 2. The most frequently perceived symptom of breast cancer was the appearance of lump in breast (60.3%), followed by nipple discharge (38.6%). Lump in the axilla was perceived to be a symptom of carcinoma breast by only 41 (22.3%), while the remaining 143 (77.3%) did not know that lump under the armpit could be a sign of breast cancer. The least indexed symptom was ulcer over the breast by 36 (19.6%) respondents. The risk factors most frequently indexed by the respondents were "family history of breast carcinoma" (49.5%), "diet and exercise" (20.7%), "age at

parity"(17.4%), "nulliparity" (14.7%), and "use of oral contraceptives" (11.9%). Overall, four respondents (2.2%) did not have any knowledge about the risk factors, while 74% were partially aware (*n* = 136) (recognized at least two accepted breast cancer risk factors) and 13% (*n* = 24) were sufficiently aware (recognized more than two accepted breast cancer risk factors). A total of 127 (69%) respondents considered that breast cancer affected only females, while 47 (25.5%) knew that breast cancer could affect males as well as females. Among the early screening methods, Breast self-examination (BSE) was recognized as one by 66.8% of respondents. The other screening methods recognized included mammogram, examination by a doctor, biopsy, and fine-needle aspiration cytology in descending order. Seventy-eight (42.4%) respondents considered carcinoma breast to be a diseases of advancing age.

Table 3: Knowledge of the respondents regarding breast self-examination (*n*=184)

Variables	*n* (%)
Heard of BSE?	
Yes	145 (78.8)
No	39 (21.2)
Do you agree that BSE is a useful tool for early detection of breast cancer?	
Yes	115 (62.5)
No	47 (25.5)
Don't know	22 (12)
Have you been taught to do BSE?	
Yes	110 (59.8)
No	74 (40.2)
BSE is done by?	
Doctor	20 (10.8)
Trained nurse	39 (21.2)
The individual	114 (62)
Don't know	11 (6)
At what age should BSE be started?	
At birth	5 (2.7)
At 20 years	128 (69.6)
At menopause	48 (26.1)
Don't know	3 (1.6)
How frequently should BSE be done?	
Daily	24 (13)
Weekly	73 (39.7)
Monthly	71 (38.6)
Yearly	10 (5.4)
Don't know	6 (3.3)
The best time to do BSE is	
During menstrual flow	30 (16.3)
A week after the period	81 (44)
A week before the period	21 (11.4)
Anytime	47 (25.5)
Don't know	5 (2.8)
Number of steps involved in BSE	
5	55 (29.9)
7	81 (44)
9	23 (12.5)
11	10 (5.4)
Don't know	15 (8.2)

BSE: Breast self-examination

Knowledge regarding breast self-examination

The knowledge of the respondents on various aspects of BSE is depicted in Table 3. Nearly 78.8% (*n* = 145) of participants had previously heard about BSE. However, only 62% of them understood BSE as an assessment made on breast by the individual herself. Many of the respondents (62.5%) considered BSE as a good screening test. Approximately 59.8% of the nurses had been taught to do BSE, but only 81 (44%) of them knew the correct time (a week after menstruation) to do BSE and the correct number of steps (total steps = 7) involved. Of the 184 participants that responded to the question item on the appropriate age to commence BSE, 128 (69.6%) correctly stated that 20 years was the appropriate age to commence BSE.

Knowledge regarding other screening practices

The knowledge of the nurses regarding other screening methods (CBE and mammography) was also assessed [Table 4]. One hundred and thirty-one (71.2%) respondents had heard about CBE, 151 (82%) thought that it was done by a doctor or a trained nurse, 39 (29.2%) of them thought that it should be done yearly, and 34 (18.5%) of them responded that it should be done on an abnormal BSE. However, a significant number of them, 79 (42.9%) thought that CBE was done on a monthly basis. Although mammographic screening was known to majority 142 (77.2%) of them, only 31 (16.8%) of them gave a correct response of the indication for mammography as an abnormal BSE or CBE. Many of them had a poor knowledge about the frequency of mammographic examination and considered it to be a test that was done as frequently as weekly (10.3%) or monthly (29.3%).The major source of information was hospital based (41.8%), media (34.2%), books (30.4%), and lectures (28.3%).

Knowledge and awareness scores

The mean knowledge and awareness score of the nurses who participated in the study with a total score of 35 is 13.059 with a standard deviation (SD) of 4.673 (13.059 ± 4.673). Nearly 12.5% of the nurses (*n* = 23) had good knowledge, 54.3% of the nurses (*n* = 100) had an average knowledge, while 33.2% of the nurses (*n* = 61) had poor knowledge scores in the study conducted.

DISCUSSION

Ours is a 1150-bedded teaching hospital with various surgical and medical specialty departments catering to patients suffering from various malignancies including breast cancer. The patients predominantly belong to the lower socioeconomic strata. Breast cancer accounts

Table 4: Knowledge of the respondents regarding other screening practices and their information source (*n*=184)

Variables	n (%)
Are you aware of CBE?	
Yes	131 (71.2)
No	53 (28.8)
CBE is done by	
Doctor	77 (41.8)
Trained nurse	74 (40.2)
The individual	35 (19)
Don't know	8 (4.3)
How often should CBE be done?	
Weekly	17 (9.2)
Monthly	79 (42.9)
Yearly	39 (21.2)
Abnormal BSE	34 (18.5)
Don't know	17 (9.2)
Are you aware of mammography?	
Yes	142 (77.2)
No	42 (22.8)
At what age should mammography be started?	
From birth	1 (0.5)
From puberty	39 (21.3)
From 20 years	63 (34.3)
From 40 years	56 (30.4)
After menopause	12 (6.5)
Don't know	1 (37)
How often should mammography be done?	
Weekly	19 (10.3)
Monthly	54 (29.3)
Yearly	37 (20.1)
Every 3 years	28 (15.2)
When a lump is found on BSE or CBE	31 (16.8)
Don't know	15 (8.2)
What is the source of your information?	
Books	56 (30.4)
Media	63 (34.2)
Hospital	77 (41.8)
Lecture	52 (28.3)
Friends	8 (4.3)

CBE: Clinical breast examination, BSE: Breast self-examination

for 19%–34% of all cancer cases among women in India.[11] The public awareness regarding the risk factors for carcinoma of breast and their attitude regarding the practice of BSE can go a long way in detecting the disease at an early stage and decreasing the morbidity and mortality associated with it. Nurses can play an important role in promoting this awareness. In our study, we tried to analyze the knowledge and awareness levels of the female staff nurses working in our hospital about BSE and risk factors for carcinoma breast and found that only 12.5% had an overall good knowledge, 54.3% had an average knowledge, and 33.2% had poor knowledge. Another study among female staff nurses of seven teaching hospitals in Karachi showed a good level of knowledge in 35% of the participants, an average level of knowledge in 45%, and a poor level of knowledge in 25% of them.[13] They concluded that the nurses who were affiliated with private school of nursing and those who had cared for a patient with breast cancer had better knowledge about the disease. Our study population was constituted by a random mix of

nurses working in various departments. The predominant source of information among our staff was hospital based, acquired from exposure to patients with the symptoms and signs of the disease. This probably explains the low levels of knowledge among nursing staff who have not worked with patients with carcinoma breast. In a study among Jordanian nurses, Alkhasawneh[14] found the level of knowledge among the nurses were no better than levels of knowledge of other Jordanian women and only 18% of the nurses practiced BSE on a monthly basis. The prevalent religious beliefs and cultural practices determined the basis of their knowledge. Few of the nurses in spite of their medical background had a fatalistic view of the disease considering it to be a mark of destiny. The lack of knowledge has been considered as the main hindrance to practicing BSE.[14] In India too, women generally identified unhealthy lifestyle with alcohol and tobacco consumption as important risk factors.[3] In our study, although family history was identified as a major risk factor by about half of the nurses, the reproductive history which is a more consistent risk factor was not reported by most of them.

In an experimental study to test the knowledge of breast cancer and competency in performing BSE before and after a workshop on the same, using a set of questionnaires among student nurses in Saudi, the researchers found that their knowledge levels considerably increased following the workshop.[8] Hence, conducting regular workshops with practical demonstration of the screening method and simultaneously creating awareness regarding the risk factors and early symptoms and signs will help the nurses to enhance their own skills and levels of confidence to be advocates to promote breast cancer awareness among other women.

The mean knowledge and awareness score of the nurses who participated in our study with a total score of 35 was 13.059 with a SD of 4.673 (13.059 ± 4.673). This was consistent with the findings in a study among female dental students which also found a poor level of knowledge and low rate of practice of BSE.[9] A few studies have tried to assess the knowledge, attitude, and practice of BSE among college students in India. In a study among undergraduate college students, a low overall knowledge score was noted. The scores improved significantly when the students were analyzed again after an intervention in the form of a teaching program.[15] This underscores the fact that it is vital to conduct health education programs which will help to encourage healthy practices at a young age. A questionnaire-based study in Bengaluru on 1030 students before and after an awareness talk found that only 18% of the participants had heard about BSE before the talk. However, in a study[16] among college students

in Pakistan, 60.8% of the participants were aware of the correct method of BSE and 50.8% knew the correct timing, while another study among female college students in Cameroon reported poor awareness regarding the same (25.9% and 7%, respectively).[17]

Majority of the respondents (78.8%) in our study had heard of BSE and 59.8% had been taught to do it. This was similar to the findings in a study among nurses where the percentage of awareness regarding BSE was 52%.[16] In another study among female health-care workers, 63% of the respondents claimed good awareness;[18] while in a study among nurses in Nigeria, all the respondents (100%) were aware of BSE although none of them could describe the accurate method or timing.[19] In our study too, only 44% were aware of the correct number of steps involved in BSE and the appropriate time to do it. Although many of the participants perceived that BSE was a good method for early detection of breast cancer, most of them lacked sufficient information about its practice. The fact that some of the health workers and nurses had better knowledge than others is probably due to their work experience. Nurses who had cared for breast cancer patients and those who had performed CBE were also better informed about the screening methods and risk factors. This reflects the lack of adequate emphasis being placed on prevention of a disease during their training programs. The nursing curriculum should stress on the modifiable and preventive aspects of diseases and should also educate on the risk factors and screening methods.

In their study on breast cancer awareness in the general female population in India, Gupta *et al*. found a low literacy levels of cancer risk factors among Indian women irrespective of their socioeconomic status and educational qualifications.[3] Many patients in developing countries present with breast cancers in advanced stages. This is because of the prevalent social norms, cultural beliefs, ignorance, and fear of mastectomy. In these populations, where the resources are limited, the availability of screening methods such as mammography or ultrasonogram is rare. Hence, it is necessary that these women are made aware of the practice of BSE. It is a simple and inexpensive method which does require a visit to the hospital and can be done at her own convenience.

Majority (98.9%) of our participants were in the age group of 21–40 years which was consistent with a study from Pakistan among staff nurses who reported a similar age group (32 ± 8).[13] while the other studies which mainly studied the awareness among college students have reported a younger age group.[10,20] The main sources of

their knowledge regarding various screening practices were hospital acquired (41.8%), followed by media (34.2). Similar observations were made by other studies.[17,21] A deficit in the knowledge regarding risk factors among health-care professionals can directly translate to a deficient knowledge among the public, especially in the primary care setup. In our study, we found an inadequate awareness among our staff nurses regarding the modifiable risk factors which can guide the high-risk individuals and can help in prevention or early detection. A similar observation was made by Gupta *et al*. The percentage of nurses who demonstrated a good level of knowledge was 12.5%. Many other studies have also reported a lower percentage of nurses with good knowledge.[2,13] In our study, the nurses who had worked with carcinoma breast patients had a better knowledge about the risk factors and screening methods. Other studies have reported a better awareness among nurses who had a higher qualification or studied in better institutions.[2,3,13]

CONCLUSIONS

This study was conducted to assess the level of knowledge and awareness regarding breast cancer and its screening practices (BSE) among the female nurses in our hospital and we found that there was an awareness deficit among our nurses. Since nurses can reach out to the women in society and can help to enhance their knowledge about the risk factors and methods of early detection, it is important that they themselves be adequately aware of the same. This can be done by conducting regular educational workshops which will help to further their knowledge and they can apply this knowledge effectively to educate the public. Screening guidelines should be developed at a national level which can aid the nurses in practicing and teaching early detection methods. Programs which focus on the preventive aspects of disease should be given adequate importance during training of nurses and health-care workers.

Conflicts of interest
There are no conflicts of interest.

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