



## BREAST CANCER AWARENESS, ATTITUDE, PERCEPTION AND SCREENING PRACTICES AMONG FEMALE UNDERGRADUATE STUDENTS

Nida Suhail<sup>1\*</sup>

1. Department of Medical Laboratory Technology, Faculty of Applied Medical Sciences, Northern Border University, Arar, Saudi Arabia.

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### ABSTRACT

The study investigates the knowledge and attitude of female undergraduate students about different aspects of breast cancer and practice of Breast Self-Examination (BSE). The study enrolled 100 students. Questionnaires were distributed among the students which included questions about their socio-demographic information, knowledge about signs, symptoms and risk factors of breast cancer, attitude towards breast cancer and practice of BSE. Majority of the students were found to have good knowledge about common risk factors such as old age, family history, less physical activity, smoking, but there was a general inadequacy of information among the students regarding certain risk factors that are known to be related with the breast cancer like combined hormone therapy after menopause, early menarche and late menopause. The level of students' knowledge regarding certain signs of breast cancer like changed skin color of the breast, discharge of blood from the nipple was also inadequate. A positive attitude towards breast cancer was observed among the learners. The study also revealed that participants were well aware of BSE and had sufficient knowledge about it but most of them did not practice it. Lack of time and fear of finding an abnormality were identified as the main reasons for lack of practicing BSE. The study highlights the importance of raising awareness among women regarding risk factors, warning signs and early detection of breast cancer procedures to overcome the burden of this disease on society. Educational institutes can organize special workshops, seminars and awareness programs for educating women about breast cancer.

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### Introduction

Breast cancer is the primary cause of mortality due to cancer in women in the world [1-5]. Globally, there has been an annual increment of 3.1% in breast cancer incidence [6]. The increase in breast cancer incidence in developing countries involves a number of factors such as sedentary lifestyle, urbanization and changing patterns of environmental and reproductive risk factors [7, 8]. Majority of the deaths occurring due to breast cancer are associated with low-income countries [6]. This high rate of fatality in these countries might be due to lack of knowledge about the disease that causes a delayed diagnosis. It is not clear what actually causes breast cancer, but a number of factors have been identified which increases the likelihood of developing breast cancer in an individual. These risk factors include family history of breast cancer; late menopause (>55 years), early menarche (<12 years), late age at first pregnancy (>30 years), old age, lack of breastfeeding, use of contraceptives, use of tobacco, smoking, high fat diet, obesity (postmenopausal), recent and long-term consumption of hormonal replacements, sedentary life style, exposure of chest to high-dose x-ray [9, 10].

Dearth of knowledge about breast cancer results in the delayed diagnosis of the disease and hence poor treatment outcomes. Creating public awareness about different aspects of the disease and screening on regular basis can help in the early diagnosis and better treatment outcomes. Routinely used methods for screening include clinical breast examination, Breast Self-Examination (BSE) and mammography [11]. BSE is a very easy and cost effective method of self-screening which does not require any particular equipment. Practice of BSE on a regular basis may be useful in the early diagnosis of breast cancer in women and hence early medical intervention and increased survival rate [12].

Since the possibility of breast cancer is almost low in university students, at this age it is significant to create an awareness of breast health and a consciousness of breast cancer. Therefore, the aim of the present research was to examine the awareness

**Corresponding Author:** Nida Suhail; Department of Medical Laboratory Technology, Faculty of Applied Medical Sciences, Northern Border University, Arar, Saudi Arabia. E-mail: nsuhail123@gmail.com

of breast cancer among female undergraduate students with regards to the signs and symptoms and risk factors of the disease and practice of BSE.

## Materials and Methods

### Study Design

This study included 100 students studying in the College of Medicine and Applied Medical Sciences, Northern Border University, Arar, Saudi Arabia. A survey method was employed where questionnaires were distributed among the female students. The questionnaire included questions about socio-demographic information, the origin of students' information about breast cancer, their awareness about the risk factors and early warning symptoms and signs and of breast cancer, questions regarding their attitude towards breast cancer and performing breast self-examination.

### Inclusion Criteria

Female students of applied, medicine, and nursing courses in the College of Medicine and Applied Medical Sciences were included in the study.

### Exclusion Criteria

The students who were unwilling to take part in the study were excluded.

### Statistical Analysis

Statistical Package for Social Sciences (SPSS) version 22 was used for data entry and analysis. Percentages, frequencies, graphs and tables were used to describe study variables.

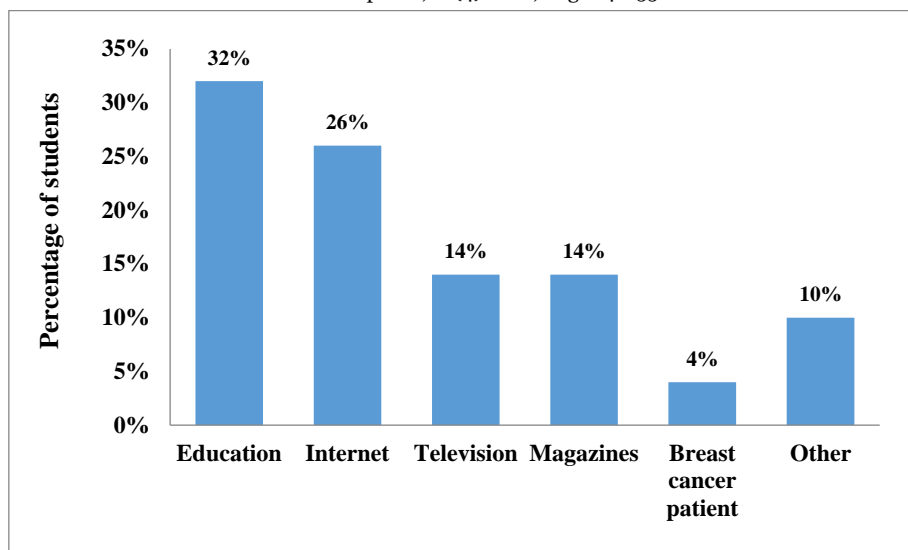
## Results and Discussion

**Table 1** outlines the socio-demographics and general knowledge of students about breast cancer. The survey enrolled a total number of 100 female students with an age range of 19-22 years. Majority of the students belong to the department of applied medical sciences (54%), followed by nursing (26%) and medicine department (20%). Most of the students participating in the study were in the 4<sup>th</sup> year (48%) whereas, the percentage of 2<sup>nd</sup> and 3<sup>rd</sup> year students were 22% and 30% respectively. Majority of the students were unmarried (82%). Most of them had good general awareness considering breast cancer. Most of the students were informed the fact that breast cancer cannot be transmitted from one person to another (84%) and it is the leading cause of cancer death in women (64%).

**Table 1.** Socio-demographics and General Knowledge of Students about Breast Cancer

Age Range (years)	19-22
<b>Department</b>	
Applied	54 (54%)
Medicine	20 (20%)
Nursing	26 (26%)
<b>Year of study</b>	
2 <sup>nd</sup>	22 (22%)
3 <sup>rd</sup>	30 (30%)
4 <sup>th</sup>	48 (48%)
<b>Marital status</b>	
Married	18 (18%)
Unmarried	82 (82%)
<b>Only females are affected by breast cancer?</b>	
Incorrect	32 (32%)
Correct	68 (68%)
<b>Breast cancer can be transmitted from one person to another?</b>	
Incorrect	16 (16%)
Correct	84 (84%)
<b>Breast cancer is the leading cause of cancer death in women?</b>	
Correct	64 (64%)
Incorrect	36 (36%)

**Figure 1** shows the students' origin of knowledge about breast cancer. Education (mentioned by 32% students) and internet (mentioned by 26% students) were the most cited sources of awareness of breast cancer among the female students followed by television (mentioned by 14% students) and Magazines (mentioned by 14% students).



**Figure 1.** Origin of Knowledge about Breast Cancer

**Table 2** illustrates the knowledge of students about risk factors of breast cancer. Our results showed that most of the students declared smoking, family background, and old age, as probable risk factors for breast cancer. In addition, they were informed of the reality that breast feeding and having more children are not risk factors for breast cancer. But there was insufficient knowledge among female students about certain risk factors already mentioned to be related with the breast cancer like Combined hormone therapy after menopause (36% students answered correctly), Early menarche (32% students answered correctly) and Late menopause (34% students answered correctly).

**Table 2.** Knowledge about Risk Factors of Breast Cancer

Factors	Correct N (%)	Incorrect N (%)
Older age (>45 years)	70 (70%)	30 (30%)
Less Physical activity	72 (72%)	28 (28%)
Being overweight / Obese	72 (72%)	28 (28%)
Consumption of fatty foods	64 (64%)	36 (36%)
Combined hormone therapy after menopause	36 (36%)	64 (64%)
Family history of breast cancer	90 (90%)	10 (10%)
Early menarche (<12 years)	32 (32%)	68 (68%)
Late menopause (>55 years)	34 (34%)	66 (66%)
Oral contraceptive use	60 (60%)	40 (40%)
Smoking	82 (82%)	18 (18%)
Breast feeding	86 (86%)	14 (14%)
Having more children	76 (76%)	24 (24%)

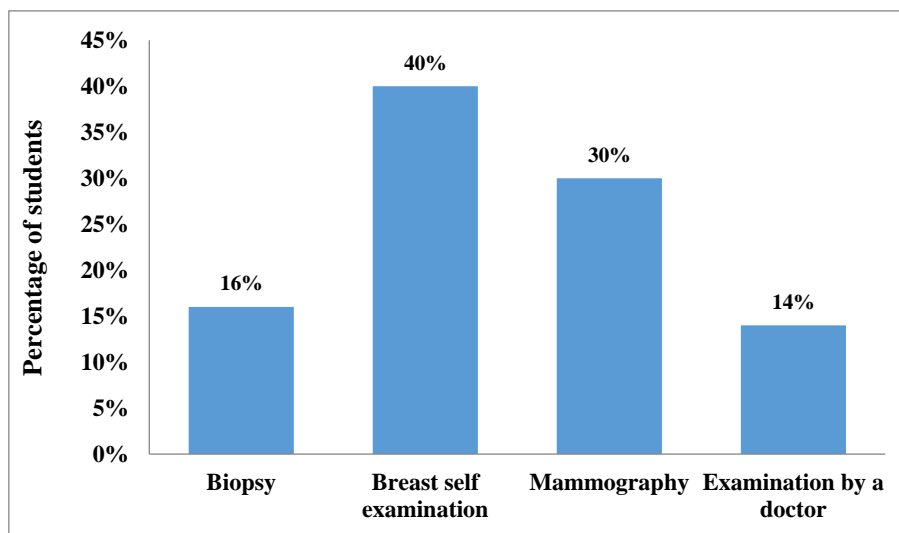
**Table 3** represents the knowledge of students about early warning symptoms and signs of breast cancer. Most of the students (64%) were aware that pain in the breast does not always show the existence of breast cancer, but the presence of a lump in the breast (indicated by 92% students) and weight loss (indicated by 84% students) can be an indicator. The level of students' knowledge regarding certain warning signs of breast cancer such as bloody discharge from the nipple, and alteration in the color or shape of nipple, and alteration in skin color of the breast, was inadequate.

**Table 3.** Awareness about Early Warning Signs and Symptoms of Breast Cancer

Symptoms	Correct N (%)	Incorrect N (%)
Pain in breast	64 (64%)	36 (36%)
Alteration in skin color of breast (redness)	38 (38%)	62 (62%)
Breast lump	92 (92%)	8 (8%)
Bloody discharge from nipple in a non-pregnant woman	34 (34%)	66 (66%)
Alteration in the shape or color of a woman's nipple	42 (42%)	58 (58%)

Lump in neck or armpit	82 (82%)	18 (18%)
Weight loss	84 (84%)	16 (16%)

The knowledge of research subjects about the screening/diagnostic methods of breast cancer is illustrated in **Figure 2**. Breast self-examination was identified as the diagnostic method by majority of the students (40%) followed by mammography (30%). Only 16% of the students mentioned biopsy as a tool of diagnosis.



**Figure 2.** Awareness of Students about Diagnostic methods of Breast Cancer

**Table 4** shows the attitude of students towards breast cancer. Majority of the students identified breast cancer as a serious disease (92%) and intended to see a doctor (90% students) in case of existence of lump in the breast. About 90% of the students claimed to seek medical help as soon as possible (90%) whereas, 10% students considered that it might be delayed.

**Table 4.** Attitude towards Breast Cancer

Questions	N (%)
<b>Breast cancer is a serious disease?</b>	
Yes	92 (92%)
No	8 (8%)
<b>Breast cancer is curable</b>	
Yes	70 (70%)
No	30 (30%)
<b>Attitude if respondent develops breast cancer</b>	
Be scared	10 (10%)
Visit a doctor	90 (90%)
Go to a prayer house	0
Use traditional drugs	0
Accepts mastectomy	0
<b>Time period to see a doctor if you discover a breast lump</b>	
As soon as possible	90 (90%)
1-3 months	10 (10%)
Not bother at all	0

**Table 5** shows the knowledge of breast self-examination by the respondents. While a large majority of the students mentioned the idea that its aim was the early diagnosis of breast carcinoma (80% students), only 6% students were unaware about it. Most of the students (74%) knew how to perform BSE, how often it should be performed (70% students answered monthly) and the appropriate time (64% answered after menstruation) to perform it. They were also aware of the fact that all menstruating women should practice it (indicated by 64% students).

**Table 5.** Respondents' Knowledge of Different Aspects of Breast Eelf-examination (BSE)

Questions	N (%)
<b>What is the purpose of BSE?</b>	
Early diagnosis of breast cancer	80 (80%)
Confirmatory in case of doubt	14 (14%)

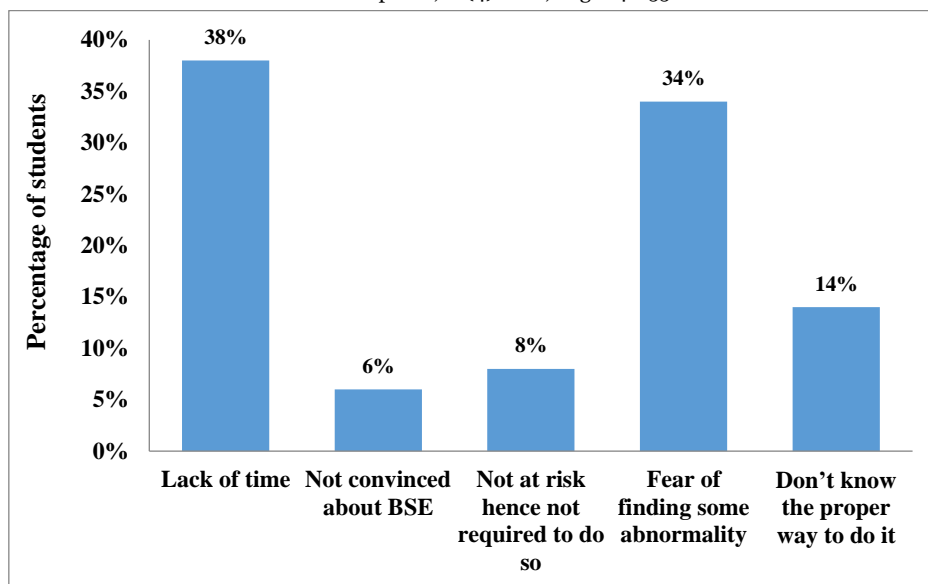
Does not know	6 (6%)
<b>Do you know how to perform BSE?</b>	
Yes	74 (74%)
No	26 (26%)
<b>Who should practice BSE?</b>	
All menstruating women	64 (64%)
Women aged over 20	10 (10%)
Women aged over 30	14 (14%)
Women with breast cancer in the family	0 (0%)
Does not know	12 (12%)
<b>How often BSE should be performed?</b>	
Weekly	4 (4%)
Monthly	70 (70%)
Six months	20 (20%)
Does not know	6 (6%)
<b>Appropriate time to perform BSE?</b>	
Any time	10 (10%)
Before menstruation	14 (14%)
During menstruation	0 (0%)
After menstruation	64 (64%)
Does not know	12 (12%)

**Table 6** demonstrates the practice of breast self-examination by respondents. More than half (64%) of the participants had done BSE at least once. When participants were asked about the frequency with which they practice BSE, only 24% said monthly, indicating a lack of practice among the students.

**Table 6.** Practice of Breast Self-examination by Respondents

Questions	N (%)
<b>Ever done breast self-examination?</b>	
Yes	64 (64%)
No	36 (36%)
<b>How often do you do BSE?</b>	
Every month	24 (24%)
Sometimes	44 (44%)
Once a year	12 (12%)
Once in a while	20 (20%)
<b>Has been taught BSE by health worker?</b>	
Yes	44 (44%)
No	56 (56%)
<b>Have noticed an abnormality in breast?</b>	
Yes	8 (8%)
No	92 (92%)
<b>Type of abnormality</b>	
Discharge	2 (25%)
Lump	6 (75%)
<b>Did seek medical attention</b>	
Yes	8 (100%)
No	0

Lack of time (38%) and fear of finding an abnormality (34%) were identified as the main reasons for lack of practicing BSE among students (**Figure 3**).



**Figure 3.** Barriers to Breast Self-examination

Breast cancer is the most common malignancy and the leading cause of cancer related death among women worldwide [1]. Creating public awareness about different aspects of the disease and screening on regular basis can help in the early diagnosis and better treatment outcomes. Therefore, the aim of our research was to examine the awareness of breast carcinoma among female undergraduate students with regards to the risk signs, factors, and symptoms of the disease and practice of BSE.

Our results showed that the extent of knowledge among students regarding breast carcinoma was high and most of them had good general knowledge regarding it. More than 60% of the study participants knew that breast carcinoma is not contagious; it can affect men also and is the leading cause of cancer related death in women. Formal education plays a crucial role in awareness of various health issues which is evident from our results where majority of the students (32%) has indicated education as the source of information about breast cancer. In our study about 70% of the respondents regarded old age as an important risk factor for development of breast cancer and more than 60% students indicated a direct relationship of breast cancer with physical inactivity, obesity, smoking, oral contraceptives and lack of breast feeding. The results obtained from our study are better than a study conducted in India, where only 35% of the research population was informed the risk factors [13]. However, a lack of knowledge was observed among the students about certain complex risk factors that are already known to be related with breast cancer incidence such as combined hormone therapy after menopause (36% students answered correctly), early menarche (32% students answered correctly) and late menopause (34% students answered correctly). This result was analogous with those of the researches performed in Malaysia, Egypt, Oman, and Britain [14-17]. Regarding the knowledge about breast cancer symptoms, the majority of the students were aware of the reality that the existence of a lump in breast tissue (92%), existence of the lump in the neck or armpit (82%) and weight loss (84%) can be potent early warning signs. A small percentage of students (only 36%) believed that pain in breast can be the sign of breast carcinoma, that is in fact a general misunderstanding [18, 19]. Studies have indicated that the majority of the patients are unaware of their situation which is primarily because of the painlessness of the lump that finally leads to delayed medical attention [20]. The level of students' knowledge regarding certain signs of breast cancer like changed skin color of the breast, discharge of blood from the nipple was inadequate. Usually women desire to ignore the early warning signs that results in delayed medical help and poor therapy outcomes.

A positive attitude towards breast carcinoma was observed among the students. Most of the students identified breast cancer as a serious disease (92%) and intended to see a doctor (90% students) in case of lump in the breast. About 90% of the students claimed to seek medical help as soon as possible (90%) whereas, 10% students considered that it might be delayed. This positive attitude of participants increases their likelihood of seeking early medical help which will favor improved prognosis [21].

Awareness of BSE is important for young ladies as its awareness and practice on a regular basis may assist in the early detection of breast carcinoma in women and hence early medical intervention and increased survival rate. In our study 74% of the students had heard about BSE and knew how to perform it, but only 24% practiced it regularly. Other developing countries also reported a similar trend where about 87.7% of the female undergraduate students was informed about BSE but only 19% of them did it regularly [22]. Another research including female learners from India indicated much better (45%) findings [23]. Nevertheless, a positive issue in the present study was a healthy and positive attitude of the students considering getting medical help in case of a lump in the breast, where all the students who noticed an abnormality in their breast had taken medical help.

Although the role of BSE as a preventive measure against breast cancer mortality has been debated, but it can be used to enhance the awareness of breast health among women [24]. Educating women about BSE can help them to know about the structure and composition of their normal breasts, thereby increasing their sensitivity to any abnormality as soon as it appears.

### Conclusion

In our study, majority of the students had good knowledge about many common risk factors and warnings symptoms of the breast carcinoma, but a dearth of awareness was observed among the students regarding certain risk factors that are known to be related with the breast carcinoma such as combined hormone therapy after menopause, early menarche and late menopause. A positive attitude towards breast carcinoma was observed among the learners. The study also revealed that participants were well aware of BSE and had sufficient knowledge about it but most of them did not practice it. The study highlights the importance of raising awareness among women regarding breast carcinoma risk factors, warning symptoms and early diagnosis procedures to overcome the burden of this disease on society. Educational institutes can organize special workshops, seminars and awareness programs for educating women about breast cancer.

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**Conflict of interest:** None

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**Ethics statement:** The study was approved (decision no. 2/43/H) by the ethical committee of the Northern Border University (Local Committee of Bioethics- HAP-09-A-043).

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