

Research Article

A Cross-Sectional Study to Assess the Knowledge, Practice and Associated Factors Related to Breast Cancer in Nursing Students

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A B S T R A C T

Background: Breast Cancer is a major health problem among women and early detection will help to reduce the magnitude of morbidity and mortality. Breast Self-Examination (BSE) is important tool in the early detection and screening for mass awareness. Nursing Students need to have knowledge and awareness of Breast Cancer as they are the forerunners for spreading awareness in masses.

Objective: The study was designed with an aim to assess the knowledge, practice and associated factors related to Breast Cancer among Female Nursing Students.

Methodology: The study design is descriptive cross-sectional and was conducted among 789 female nursing students in Nursing Colleges. A self-administered questionnaire was used as a tool to collect the data on the demographic information, knowledge, practice of BSE and stress related factors.

Results: Maximum participants (373, 47.3%) belonged to age group of 21-22 yrs, 8.1% had attained menarche below the age of 12 yrs, 139 students reported family history of cancer, 62 students gave history of excision of breast lump, 25 underwent FNAC for breast lesion, 39 had history nipple discharge, 37 (4.7%) reported pre- menstrual breast pain while 10 students gave history of drainage of breast abscess. 91% of them had good knowledge about Breast Cancer screening, Classroom teaching emerged as the primary source of information for (67%) of the students followed by information from health professionals (21.1%) but the majority of the students demonstrated lack of knowledge about signs of Breast Cancer. 11.9% were overweight and 8.9% were obese, over 50% consumed junk food weekly, 35.2% liked pizza and burgers and they (71.8%) preferred eating them during snacks time. Among the participants, highest percentage of students perceived academic, clinical and health problem related stress least stressful but still many felt that it caused very-to-severe stress.

Conclusion: Breast Cancer causes a lot of sickness and grief among women. Awareness about screening and early detection of Cancer Breast is an important step which is a first step towards early management and

prevention of complications. The Nursing students play an important role as advocates and voices to promote breast health awareness and BSE to motivate more women to become partners for cancer screening initiatives.

Keywords: Nursing students, Breast Cancer, Risk factors

Introduction

“There is only One Good, Knowledge and One Evil, Ignorance”. -Socrates

An article in India today dated 08 Jul 2024 states that cases of breast cancer are rising at an alarming rate among young women. The article further emphasizes that the average age for breast cancer in India has shifted to the 20s and 30s. 1 Younger people with breast cancer experience unique challenges. According to a 2021 clinical review, breast cancer is now the most common type of cancer for women younger than 39.² However, the disease is often diagnosed in its later stages, when it tends to be more aggressive. This means the survival rate is lower and the recurrence rate is higher. Breast cancer has been considered rare in the 20s or 30s. According to data from the American Cancer Society, females under 40 years old make up just 2% of ductal carcinoma in situ cases and 4% of invasive breast cancer cases. 2 More recent data also shows that breast cancer is actually the most common type of cancer among young adults ages 15 to 39. According to the Centers for Disease Control and Prevention (CDC), 10% of breast cancer cases in the United States are in women under 45.³

In the United States, 1 in 196 women under age 40 receive a diagnosis of breast cancer. More than 12,000 women younger than 40: In 2020 alone, an estimated 12,000 women under 40 received a breast cancer diagnosis. to get a diagnosis of breast cancer in 2020 alone. The number of metastatic breast cancer cases diagnosed in women ages 25 to 39 has increased by 2.1% per year from 1976 to 2009. According to the National Cancer Institute, if you're in your 30s, your risk of breast cancer is 1 in 204, or about 0.4%. By age 40, the risk is roughly 1.5%, and by age 60, the risk increases to about 3.5%.

According to a study among Indian women, breast cancer incidence, when standardized to age, is 22.9, and mortality is 11.19.⁴

The methods of combating BC by early detection are BSE, clinical breast examination, and mammography. Unfortunately, many methods are inaccessible to women in developing countries, often due to lack of awareness or lack of resources. BSE is a low-cost screening procedure that is self-performed that is recommended to increase overall Breast health awareness as well as for detection of breast lumps. 4 Nurses and other health care providers

form an important link between the healthcare services and the population. Awareness and knowledge are two very important tools for early detection and prevention. Nursing students must have accurate information about the risk factors associated with breast cancer, as well as their personal risk assessment. Additionally, students can understand what is normal for female bodies and become familiar with breast anatomy and physiology. As part of the educational process, health educators must assist students in understanding their knowledge, perceptions, and attitudes related to breast cancer. Providing knowledge to nursing students may be an important starting place for promoting breast awareness and understanding problems associated with breast cancer. 5 In a study conducted, it was found that 13 out of 150 students had not heard of the practice of breast self-examination, and less than half believed that the imperative practice of breast self-examination should begin at the age of 20 years, as that is the age at which the risk to contract the disease increases. 4. This study was conducted to understand the knowledge gap and the factors that pose a threat to the students that make them vulnerable to this preventable disease. The revelation will help prevent the disease and thus reduce its incidence and burden. An increase in breast cancer awareness of nurses may have an impact by encouraging women to adhere to breast examination and screening.

According to the present study's hypothesis, knowledge about breast cancer will help prevent the risk of breast cancer among nursing students. Hence, the current study was designed to achieve the following goals:

- To assess the knowledge about signs and symptoms of breast cancer.
- To assess the attitude of students towards preventive measures of breast cancer
- To identify the modifiable risk factors among students and their association with breast cancer
- To identify the stress factors among students and their relationship with breast cancer.

Hypothesis

H1-There is a relationship between knowledge and attitude scores of Nursing students regarding breast cancer and its preventive measures with selected demographic variables.

H0-There is no relationship between knowledge and attitude scores of Nursing students regarding breast cancer and its preventive measures with selected demographic variables.

Methodology

Population: Nursing students of 5 Colleges of Nursing of South Mumbai

Sampling technique: Purposive sampling

Variables

Independent Variable: Age, BMI, Family History, Age of menarche, knowledge about Cancer Breast screening, modifiable risk factors and stress, etc.

Dependent variable: Knowledge of Nursing Students regarding Cancer Breast and its preventive measures

Inclusion and exclusion criteria

Inclusion: Age between 17- >25 yrs

Informed consent was obtained for the students.

Data collection tool: Survey Questionnaire

- **Part A:** Demographic data
- **Part B:** Risk related to Gynecological conditions
- **Part C:** Non- modifiable risk factors
- **Part D:** Awareness of Sign and symptoms
- **Part E:** Knowledge of time of Breast examination
- **Part F:** Stress related factors were assessed using SSNI

Findings

Table 1 describes the demographic characteristics of the students under study. A total of 789 students participated in the study. Maximum participants (373, 47.3%) belonged to the age group of 21-22 yrs, while 192 (24.3%) were in the age group of 23-24 yrs; only 32 (4.1%) were above 25 yrs. 64 (8.1%) had attained menarche below the age of 12 yrs, while 725 (91.9%) had menarche above the age of 12 yrs. 139 students out of 789 had a family history of cancer, 49 (6.2%) were exposed to radiation to the chest area, 62 students gave a history of excision of a breast lump, 25 underwent FNAC for a breast lesion, 39 had a history of nipple discharge, 37 (4.7%) reported premenstrual breast pain, and 10 students gave a history of drainage of a breast abscess. 86 (10.9%) students reported having PCOS, while 42 (5.3%) had a history of ovarian cysts. Out of 789 students, 53 (6.7%) were obese, while 67 (8.5%) had thyroid disorders. It is notable from the above data that a large number of students are at risk of breast cancer in later years. It was seen in the statistical analysis that year of study significantly correlated with the stress factors ($p < 0.000$), which concludes that as the students' inch through

the course, their stress reduces due to the increase in knowledge and experience. The age of the students was also found significant ($p < 0.05$) in relation to stress and breast cancer.

The above figure describes the knowledge of students about the signs and symptoms of breast cancer, and it can be seen that there is still a knowledge deficit among students. 192 students did not know about the change in the shape of the breast; 204 had no knowledge about the change in size of the breast; 162 did not know that redness of the breast skin is a clinical feature; 149 did not know about inward pulling of the nipple; 220 did not know about bleeding or discharge as symptoms; 194 didn't know that a painless mass under the armpit is a risk for breast cancer; and a maximum of 344 did not know that the harmless-seeming, painless, palpable breast lump is also a risk demanding screening. Results of the paired t test indicated that there is a significant large difference between Group 1 ($M = 183.1$, $SD = 94.9$) and Group 2 ($M = 602.1$, $SD = 95.9$), $t(7) = 6.2$, $p < .001$. A painless mass under the armpit as a risk factor was found significantly associated (p value < 0.05), which makes it more important for the students to acquire more knowledge about the signs and symptoms of breast cancer.

The above figure depicts that 345 students knew about the age to start breast exam by health care practitioner but 444 students were unaware, only 217 students were aware that mammography should be done after 40 yrs while 572 students were unaware of the same. 353 students were aware that the optimal age to start BSE is after 20 years while 436 were unaware about the age of BSE. 719 students knew that BSE should be done one week after the menstrual cycle.

Fig 3 explains that 670 students knew how to perform BSE while 119 were not aware and 615 students practiced BSE.

The above figure shows that maximum students (533) were aware about BSE from the classroom teachings, 63 had information from media, 165 got the information from the HCW while 19 got information from the family and 9 students had no information about BSE.

Table 1. Demographic Characteristics of the students

Socio- demographic characteristics		Frequency %
Age (category, yrs)	17-18 yrs	17 (2.2)
	19-20 yrs	175 (22.2)
	21-22 yrs	373 (47.3)
	23-24 yrs	192 (24.3)
	>25 yrs	32 (4.1)

N=789

Semester of study	First	08 (1)
	Second	178 (22.6)
	Third	168 (21.3)
	Fourth	88 (11.2)
	Fifth	131 (16.6)
	Sixth	02 (0.3)
	Seventh	100 (12.7)
	Eighth	114 (14.4)
Age at menarche	<12 yrs	64 (8.1)
	12-15 yrs	640 (81.1)
	15-18 yrs	85 (10.8)
Family History of cancer	Mother	44(5.6)
	Sister	7(0.9)
	Mother and sister	30 (3.8)
	Grand mother	10 (1.3)
	Grandmother and mother	21(2.7)
	Any male member	02 (0.3)
	Any distant relative	18 (2.3)
	None	657 (83.3)
History of radiation to chest in childhood or adolescence	Yes	49 (6.2)
	No	740 (93.8)
Benign Breast disease	Drainage of Breast abscess	10 (1.3)
	Excision of Breast lump	62 (7.9) 25 (3.2)
	FNAC of breast lesion	39 (4.9)
	Nipple discharge	37 (4.7)
	Pre Menstrual breast pain	616 (78.1)
	None	10 (1.3)
Gynecological disorders	AUB	24(3.0)
	Ovarian cyst	42 (5.3)
	PCOS	86 (10.9)
	None	637 (80.7)
Co Morbidity	Obesity	53 (6.7)
	Thyroid disorder	67(8.5)
	None	669(84.7)

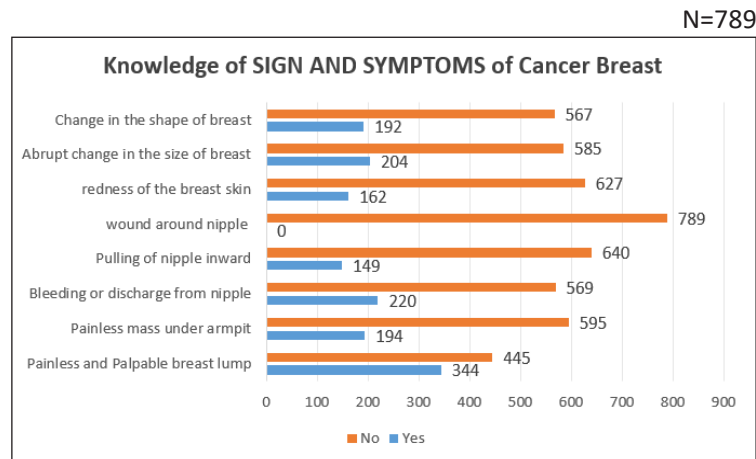
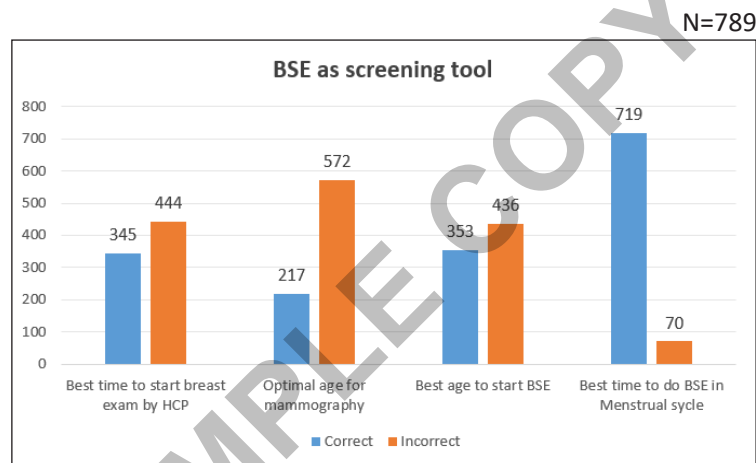


Figure 1. Distribution of participants as per the knowledge of Sign and symptoms of Cancer Breast



$T(3) = 0.1, p = .905.$

Figure 2. Distribution as per the awareness about BSE as a screening tool

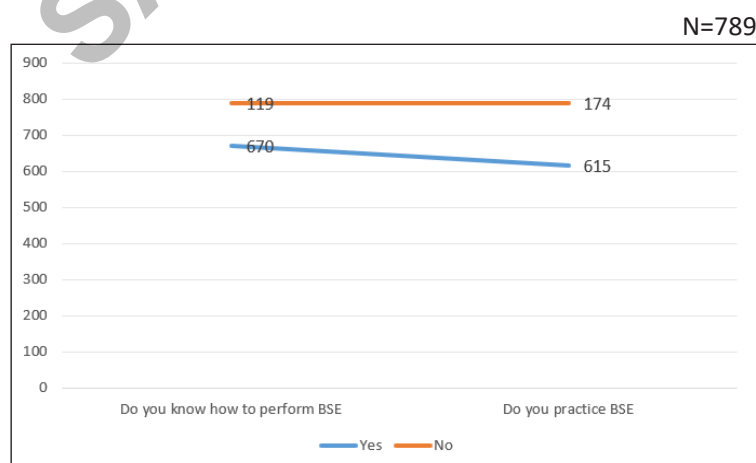


Figure 3. Practice of BSE by students

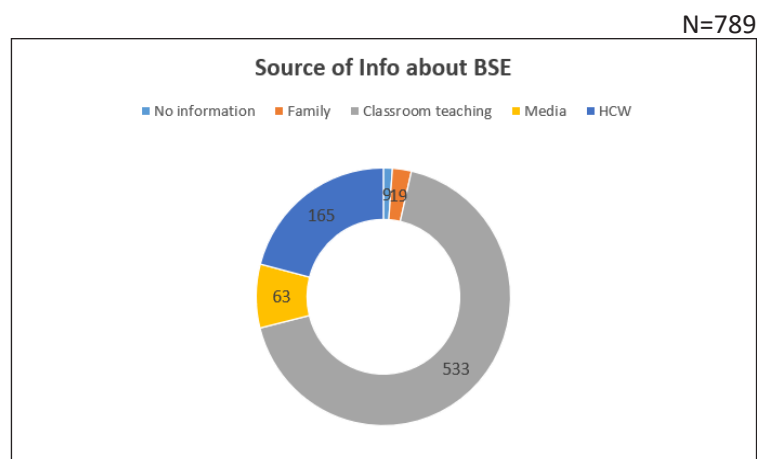


Figure 4. Distribution related to source of information about BSE

Modifiable Factors

It is noteworthy in the above figure that out of 789 students 94 (11.9%) were in the overweight category while 71 (8.9%) had BMI > 30 (obese).

The above figure illustrates that maximum students 57.3% consume junk food weekly while 15.7% consume it twice a week.

The above figure shows that maximum (278, 35.2%) students preferred Pizza/ burgers, 198 (25.09%) liked chips and biscuits, 117 (14.8%) liked to have Noodles while 42 (5.3%) preferred deep fried snacks.

The above figure shows that the 71.8% students consumed junk food during snack times, 8.8% preferred to have it during lunch and dinner.

Factors related to stress

The above figure illustrates that most of the students (212) felt that amount of classwork was not at all stressful, while 113 and 95 felt that amount of classwork was very stressful and extremely stressful, respectively. 259 students believed that difficulty of classwork was a bit stressful, while 100 felt it was very stressful, and 54 thought it was extremely stressful. 216 students felt that the stress of examinations was moderate, while 150 felt it was very stressful, and 128 had extreme stress from exams. 86 students felt peer competition was extremely stressful, and 115 felt it was very stressful.

The above explains that 99 students feared failing as extremely stressful and 57 students feared failing as very stressful. 110 felt that the response of college towards student needs made them feel extremely stressed, and 108 thought it was very stressful. 108 students made them feel extremely stressful because of the expectation of others.

The above figure illustrates that 26 out of 789 students were extremely stressed because of their health problems, while 62 were very stressed. 41 students were extremely stressed

due to the health problems of their family members, and 65 were very stressed. 33 students were extremely stressed due to the relationship with their parents, and 39 were very stressed. 29 students had other personal problems that made them extremely stressed. 69 felt that there was too much responsibility, which made them extremely stressed, while 72 felt very stressed. It can also be seen that the maximum number of students did not feel all the above factors were stressful.

The above figure depicts the stress caused due to clinical experience. It can be seen that maximum students were not at all stressed in the clinical area. A moderate number of students were moderately stressed due to factors like lack of timely feedback (150); 180 felt stressed due to the client attitude towards nursing; 114 felt stressed due to the attitude of clients towards them; 181 had moderate stress due to the atmosphere created with the teaching staff; and 137 were stressed due to the relations with staff in the clinical area. A quite a few number of students were very stressed due to the factors like lack of timely feedback (74); 51 felt stressed due to the client attitude towards nursing; 27 felt stressed due to the attitude of clients towards them; 60 were very stressed due to the atmosphere created with the teaching staff; and 74 were very stressed due to the relations with staff in the clinical area. 75%, 28%, 12.54% and 34% of students were extremely stressed due to the above factors in the clinical experience. Figure 14: Distribution of stress related due to other academic factors

Figure 14 discusses the other academic factors that cause stress among students. 66 felt extreme stress, 71 found it very stressful, and 192 were moderately stressed due to lack of time for the family. 51 felt it extremely stressful due to lack of time for entertainment; 54 were very stressed due to the lack; and 151 were moderately stressed due to lack of time for entertainment. 36, 38, and 119 students felt it extremely, very, and moderately stressful, as they were not sure of what was expected of them.

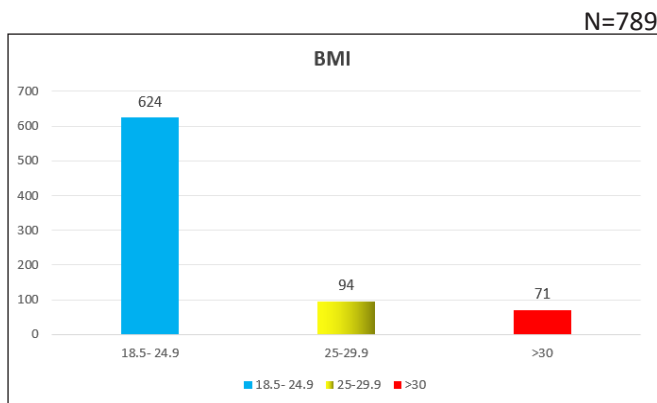


Figure 5. Distribution as per the BMI of students

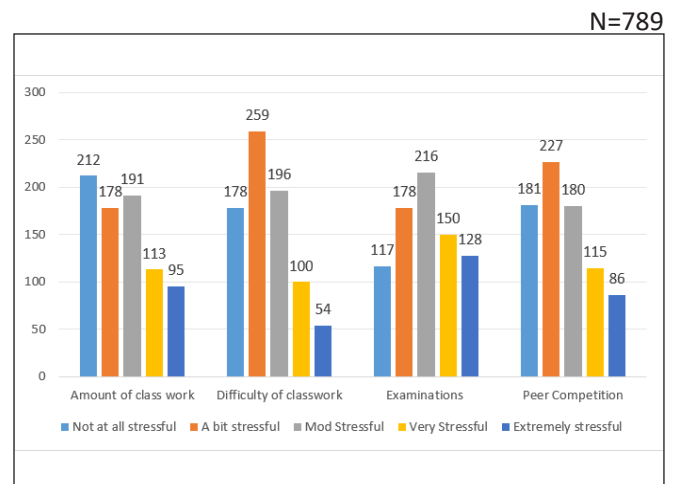


Figure 9. Distribution as per the academic stress

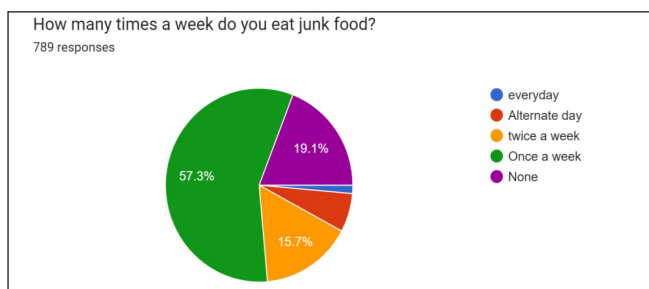


Figure 6. Distribution as per the consumption of junk food

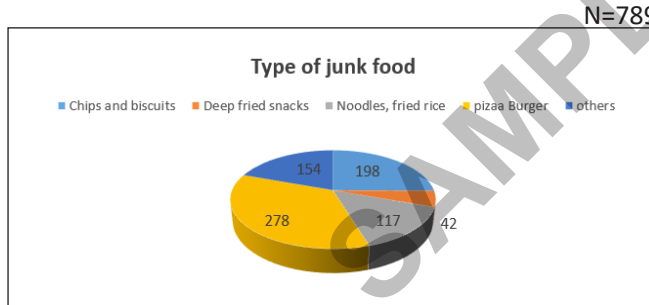


Figure 7. Type of junk food preferred by students

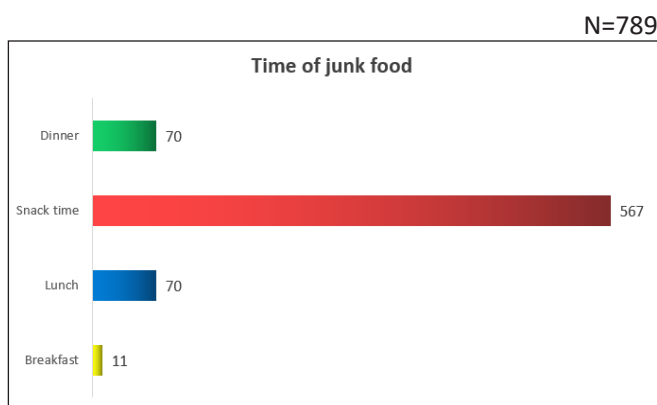


Figure 8. Distribution as the time of eating junk food

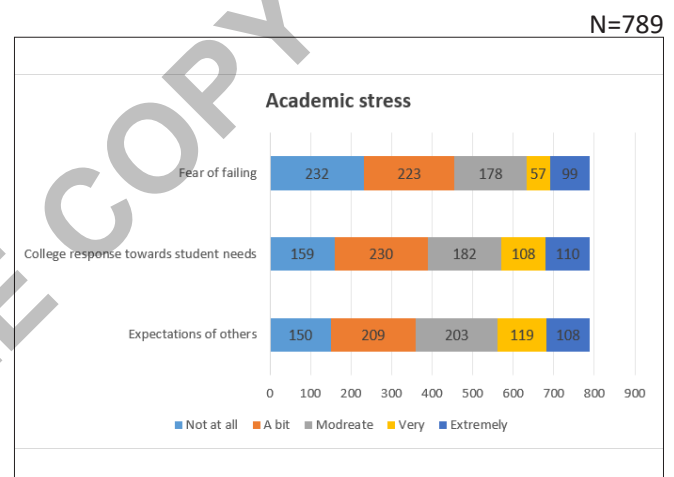


Figure 10. Distribution as per the academic stress

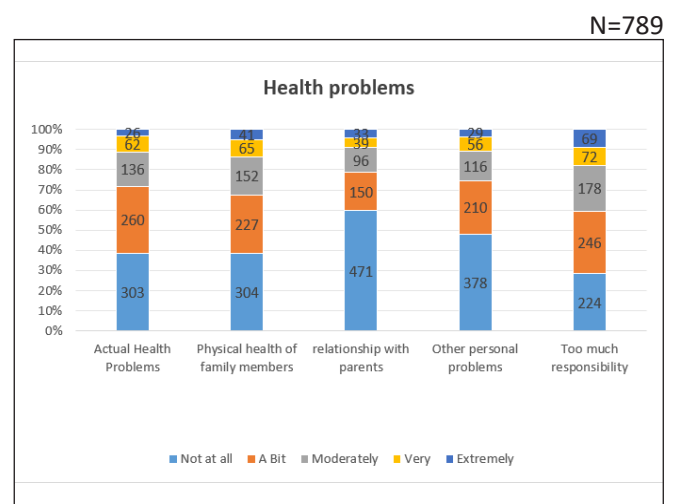


Figure 11. Distribution as per the stress due to health problems

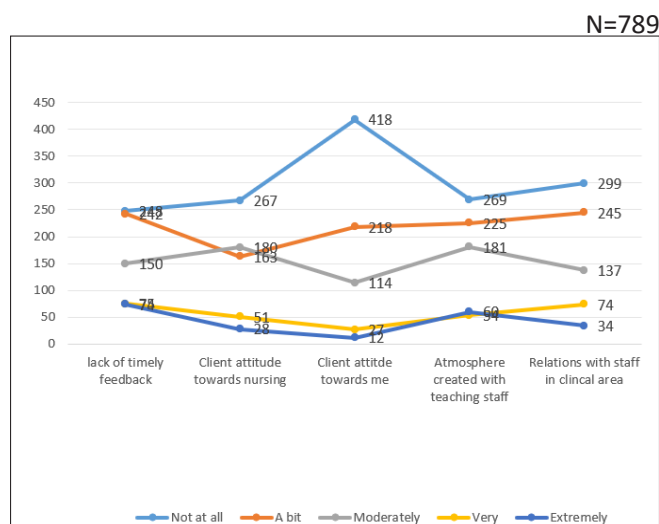


Figure 12. Distribution as per the stress due to clinical experience

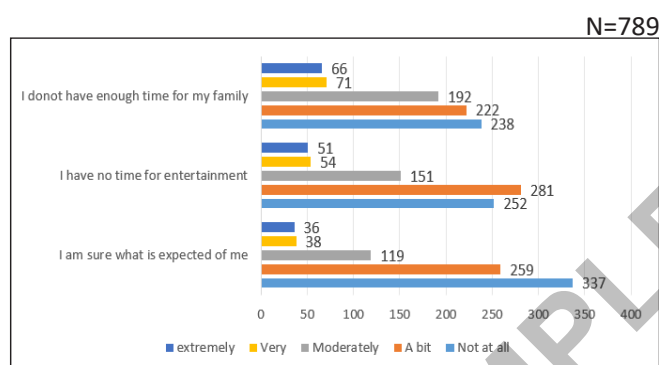


Figure 13. Distribution of stress related due to other academic factors

Discussion

Good knowledge, positive attitude, and practices are a prerequisite in the fight against and prevention of breast cancer. The major finding of the study among 789 female nursing students was that the majority (47.3%) were between 21 and 22 years old. The findings were relevant to the study conducted by Chaudhari et al. in Tripura⁶ and Yakar Hk et al. in Turkey.⁷ 81.1% of students attained menarche between the ages of 12 and 15 years, which was consistent with a study conducted by Bakary K, Sambou LS, et al., which stated that the average age of female students in Gambia was 13.54 ± 1.38 years. 16.7% of students had a family history of cancer. (8) A study conducted by Shadia A. Yosuf reported that 18% of the students stated a family history of cancer.

21.6% of students between the ages of 17 and 25 years reported having benign breast disease.⁹ Benign breast lesions are more common in the reproductive age group.⁸ The findings correlate to a study conducted by Disahnk Modhia, Sanjeev Agrawal et al., which states that the

incidence of benign breast disease begins to rise in the 2nd decade, and it peaks in the 4th or 5th decade as compared to the malignant lesions, for which the incidence continues to rise after menopause.¹² In the present study, the most common age group was found to be between 18 and 30 years, accounting for 29 patients (45.31%) out of a total of 64 patients.¹⁰ Another clinicopathological study reports that breast lumps (73.3%) are the commonest benign breast disease, and 70-80% of the biopsies performed are of a benign nature.¹¹

Knowledge of Cancer Breast

Our study reported that the students were aware of breast cancer, and almost 91% of them demonstrated good knowledge about breast cancer screening. This finding aligns with a study conducted among female students in Gambia, where 100% of the students had heard about breast cancer, and over 50% had good knowledge about breast cancer screening. It is noteworthy that they are aware of the clinical features of breast cancer.⁸ Khalip N, Isa KA Mohd, et al. also reported in their study that 79.3% of students had good knowledge of breast cancer.¹²

Classroom teaching emerged as the primary source of information for the majority of the students (67%), followed by information from health professionals (21.1%). This underscores the critical role of teachers and health care professionals in raising awareness on breast cancer. Furthermore, our respondents displayed good knowledge of breast screening methods, with more than half of them being aware of both clinical breast examination and BSE. However, a significant proportion lacked knowledge about the appropriate timing of BSE. On the other hand, the majority of the students demonstrated a lack of knowledge about signs of breast cancer. This finding corresponds with a study conducted among nursing students in Saudi Arabia, where about 2/3 did not know that palpable lymph nodes may be an indicator of breast cancer. This suggests that awareness campaigns and sensitization about the severity of illness will help in increasing knowledge about breast cancer. In conclusion, battling breast cancer among young women begins with knowledge and awareness of its signs and symptoms.

Modifiable risk factors

Regarding knowledge and understanding of the modifiable risk factors, 11.9% were overweight and 8.9% were obese; over 50% consumed junk food weekly; 35.2% liked pizza and burgers, and they (71.8%) preferred eating them during snack time. A study conducted among female students in Pakistan corroborates the study findings, where 29% of female students were overweight and 30% were obese.¹³ According to the junk food survey report, it was seen that 27% were taking junk food as an alternative to breakfast,

41% liked it for its taste, and 35% for its easy availability and time-saving nature for the choice of junk food.¹⁴ This concludes that lack of physical activity, consumption of junk food, and long sitting hours led to obesity, which poses a high risk for breast cancer.

Stress related factors

Among the participants, the highest percentage of students perceived academic, clinical, and health problem-related stress as least stressful, but still, many felt that it caused very severe stress. A study conducted by Farah Aziz, Madiha Muzaffar, and Farah Zabeen in Pakistan also shows similar findings among the participants. The highest percentage of students were perceiving moderate to severe stress due to academic-related stressors (97.1%), followed by teaching- and learning-related stressors (93.9%) and group activities-related stressors (88.3%).¹³ We can conclude that nursing students have a moderate to high degree of stress, and we emphasize the importance of implementing stress management programs to teach students how to handle stress in order to avoid negative effects on their health and academic performance.

Conclusion

The implications of this study are to emphasize the need to teach nursing students breast cancer awareness and early detection in their undergraduate course. In addition, the provision of regular interventions is necessary to increase and build up the confidence and skills of students in teaching BSE. This is an initial important step towards increasing awareness about breast cancer and encourages early adoption of breast screening initiatives.

The student nurses would be advocates to promote breast health awareness and BSE among women in the urban and rural areas during their clinical experiences, and hopefully more women will join breast cancer detection initiatives.

Recommendations

- Health awareness sessions regarding signs of Cancer Breast, Breast Self-Examination, Non-communicable diseases and gynecological problems of young adults may be included as part of curriculum from the first semester onwards.
- During the annual medical checkup of the students, students with history of benign breast problems need to be screened thoroughly.
- Detailed history during enrollment regarding history of cancer in the family may be obtained to screen these students on regular basis.
- The overweight and obese students need to be monitored for their weight and motivated for more physical activity.

- The students with less academic capability may be mentored to reduce their stress and the faculty as counselors can play a big role in it.

References

1. Breast cancer cases rising among young women is a crisis in the making- India Today, 08 Jul 2024. <https://www.indiatoday.in/health/story/breast-cancer-cases-rising-among-young-women-is-a-crisis-in-the-making-hina-khan-2563721-2024-07-08>
2. Breast cancer in your 20s and 30s. <https://www.healthline.com>
3. Early onset Breast cancer (Breast cancer in young women). <https://www.my.clevelandclinic.org/health/diseases/16805>.
4. UTTAM CK, Trivedi BS, TRIVEDI J, Trivedi K, Patel A. Awareness of breast cancer and breast self-examination among nursing students. INTERNATIONAL JOURNAL OF COMMUNITY MEDICINE AND PUBLIC HEALTH. 2020;7(4):1382. [Google Scholar]
5. Youssif E, Ibrahim Ahmed H, Abo Bakr Abd-ellatef M. Awareness of Nursing Students Regarding to Breast Cancer at New-valley Government. Egyptian Journal of Health Care. 2023 Mar 1;14(1):353-65. <https://ijrpr.com/uploads/V5ISSUE7/IJRPR31687.pdf>
6. Chaudhuri M, Das M, Das DK. A study to assess the knowledge of breast cancer and its preventive measures among GNM students in Tripura, India. J Evid Based Med Healthc. 2021;8(23):1943-8. [Google Scholar]
7. Yakar HK, Oguz S, Öktem N, Yürük S. Nursing students' awareness about the warning signs of cancer. Asia-Pacific Journal of Oncology Nursing. 2021 Jan 1;8(1):81-5. [Google Scholar] [PubMed]
8. Kinteh B, Kinteh SL, Jammeh A, Touray E, Barrow A. Breast cancer screening: knowledge, attitudes, and practices among female university students in The Gambia. Biomed Research International. 2023;2023(1):9239431. [Google Scholar] [PubMed]
9. Yousuf S. Breast cancer awareness among Saudi nursing students. Journal of King Abdulaziz University-Medical Sciences. 2010 Jan 1. [Google Scholar]
10. Modhia D, Agarwal S, Yadav P, Joshi A. A clinico-pathological study of benign breast disease at tertiary care centre. International Surgery Journal. 2022 May 26;9(6):1210-4. <https://www.ijurgery.com/index.php/isj/article/view/8819>
11. Singh, Bharat S and Nilay C. a clinico- pathological study of Benign breast diseases in females. Medical Journal of Dr D Y Patil University, 15 (3): p 346-351, May 2022. <https://www.semanticscholar.org/paper/A-clinicopathological-study-of-benign-breast-in-Singh-Chakrabarti/c6d1247a2cae061a6d3c5d7ed659dfa7f6e0c421>

12. Khalip N, Isa KA, Masri N, Rahman HA, Jalil N, Hussein SZ, Bakar SH. Knowledge and attitude toward breast self-examination among young adult nursing students in a public university in Malaysia. *The Malaysian Journal of Nursing (MJN)*. 2021 Oct 1;13(2):16-21. [Google Scholar]
13. Aziz F, Muzaffar A and Jabeen F. Prevalence of overweight and obesity among young female students in association with BMI. *RADS J. Biol.res.Appl. Sci*; Vol 8(2), July 2017. <https://www.cabidigitallibrary.org/doi/full/10.5555/20183261456>
14. Arora K, Tanwar N. Junk food survey report. *International Journal of Emerging Trends in Science and Technology*. 2014 May 16;1(03). [Google Scholar]

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