DOI: https://doi.org/10.3126/jbnc.v2i1.94947

Existing Knowledge on Breast Cancer among Secondary School Students of Biratnagar

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ABSTRACT

Background: Breast cancer is leading cause of mortality among women and most frequently diagnosed cancer globally, and its burden has increased in recent decades. The objective of this study is to assess the knowledge on breast cancer among secondary level schools' students.

Methods: Cross-sectional analytic design was used to conduct the study. The duration the study was six months from, form December 2022 to June 2023. The settings of the study were four secondary schools of Biratnagar Metropolitan. Four hundred twelve (412) students of selected secondary schools were included as the study population. A semi- structured questionnaire was used for data collection. Descriptive and inferential statistics were used for data analysis.

Results: The finding revealed that most (93.2%) of students were aged 14- 18 years. One fourth of the respondents had good knowledge (25.7%), while more than two-thirds of them (74.3%) had poor knowledge. There are statistically significant associations between the level of breast cancer knowledge and socio-demographic factors, including age, place of residence, and family history of cancer.

Conclusion: The study concluded that only one-fourth of the students had a good level of knowledge. Therefore, an awareness program may enhance the knowledge of the study of other class of concerned school.

Keywords: knowledge, students, cross-sectional breast cancer

INTRODUCTION

In 2022, breast cancer caused 670,000 global deaths, with half occurring in women and affecting 157 out of 185 countries, with 0.5-1% of cases occurring in men. It is prevalent in every corner of the world among women of all ages beyond puberty and the rate increases with advancing age. [1] It is the most prevalent cancer among urban Indian women where 1 in every 28 women is likely to get affected by the breast cancer and there were about 170,000 new cases in 2020. With the advent of effective screening modalities, early detection of breast cancer has been possible and the probability of treatment success has markedly increased. [2] Knowledge of breast cancer and its warning signs and skills of Breast Self-Examination (BSE) can be life saving for women as they can be aware of any changes in their breast related to breast cancer and seek treatment on time. [1, 3] Breast cancer cases in Nepal are increasing, accounting for 16% of all cancer cases, making it the second most common malignancy. [3] Age-adjusted rate is as high as 25.8 per 100,000 women, and the mortality is 12.7 per 100,000 women. In resource-constrained countries like Nepal, facing a substantial social and economic burden due to breast cancer, prevention is the key to effective long-term strategies to lessen the disease burden. [4] The findings of the 38 articles' scoping review revealed that levels of knowledge of breast and cervical. Knowledge gaps in breast self-examination, a study conducted with 1420 women in Pokhara valley, only 24% had heard of BSE. [5] various studies indicate that a complex relation between genetic makeup and environmental factors is the primary cause of breast cancer. [6] However, different studies have revealed low screening intentions among women and lack of education was identified as the most common reason. [6] The study found that only

31.1% of respondents knew about BSE, and 19.2% practiced it, with factors like marital status, income, education, and history of breast disease influencing knowledge and performance.[7] The study found that only 21% of students practiced breast self-examination, with higher scores among those with family members of breast cancer. One-third (33%) of participants faced barriers to self-examination due to lack of knowledge, absence of symptoms, and discomfort, indicating low breast cancer knowledge. [8]

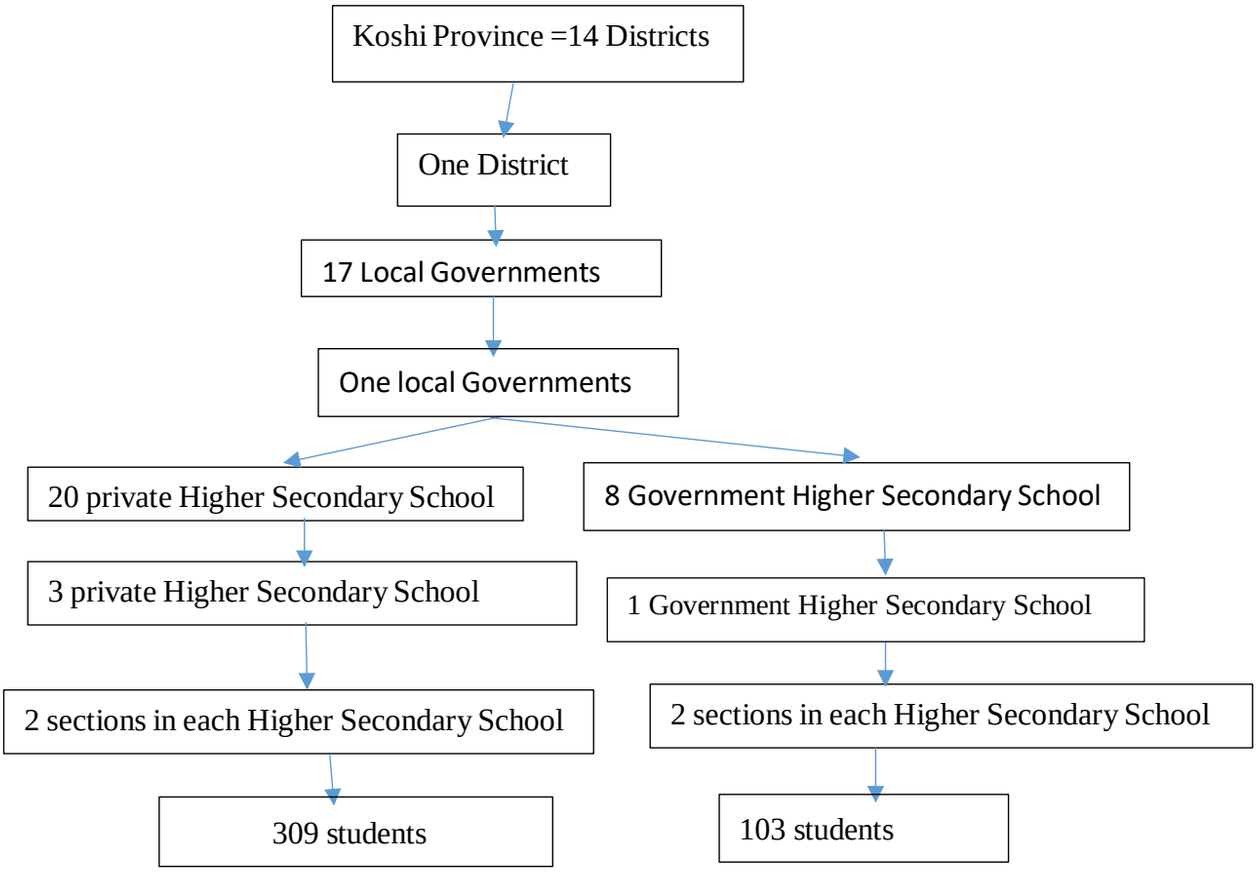
METHODOLOGY

Study design: A cross-sectional analytic study was used to conduct the study. The duration of the study was six months from December 2022 to June 2023.

Study setting and population: The setting of the study was four secondary schools of Biratnagar Metropolitan of Morang district of Province One, i.e., Adsrsha Secondary School, Aranik Secondary School, Sikshadeep Secondary School and Orchit Secondary School. Among them, three private and one governmental higher Secondary school. There is a total of 28 secondary schools at Biratnagar Metropolitan. Among them, 20 private secondary schools and 8 government secondary schools.

Sampling technique with sample size. A multistage sampling technique was used to collect the sample. In province I, there are fourteen districts, among them one district was selected randomly, (stage I) among the district, one local level government was selected randomly (stage II), among the local government, four secondary schools (one government and three private secondary schools) were selected randomly (stage III), finally proportionate sampling technique was used to select sample (stage IV).

Sampling Frame



Exclusion and inclusion criteria: Students who were studying in twelve grades in four higher secondary schools (one government and three non-government schools) of a local government, willing to participate was included in the study. Students who were in long leave, sick and absent in educational intervention was not included in the study.

Ethical Approval: Ethical approval was taken by the Institutional Review Committee of Tribhuvan University Institute of Medicine Maharajgunj. Reference no 448 (6-19) / E_2 March 17, 2023. Written permission was taken from Biratnagar Metropolitan and Higher Secondary Schools (one government and three non-government), respectively. Written informed consent will be taken from each respondent. Respondents were allowed to participate voluntarily and allowed to discontinue at any time without any queries. Privacy, confidentiality and anonymity of participants was maintained, and the data obtained were used for the research purpose only.

An instrument semi-structured questionnaire for data collection was developed by extensive reviewing of the related literature. Data was collected using a self-administered questionnaire based on the objectives of the research containing two sections: Section A: Personal and socio-demographic characteristics. Section B: It will consist of questionnaire related to knowledge regarding breast cancer. Validity: Content validity of the tool was established by the experts in related fields. Based on, their suggestions, necessary modifications were made. Pre-testing of the tool was done on 10 percent of the sample size i.e., 38 in similar setting. Pretesting was done in grade twelve students of Pokhariya and Namuna secondary schools.

Method of data collection: Data was collected during the data collected from 18th March 2023 to 18th April 2023. data was collected by self-administered technique. Permission from the concerned authority was obtained to conduct the study. Written informed consent was obtained from parents and respondents prior to the data collection. The respondents were reassured that confidentiality and anonymity was maintained throughout the study. Data was collected by self-administered questionnaire. After data collection, the data was checked its completeness in each day.

Statistical analysis: After collection of data, it was checked for completeness. The collected data was organized, coded and entered in to the Statistical Package for Social Science (SPSS) version 16. Coding was done. Coded data was entered in excel and transformed in SPSS version 16. Descriptive analysis was used to describe the demographic and other related variables which include frequency, percentage, mean and standard deviation. Inferential statistics i.e., logistic regression was used to measure the association of independent and dependent variable.

RESULT

Table 1 A: Respondents' Socio-Demographic Characteristics **n= 412**

Variables	Frequency (f)	Percentage (%)
Age (in completed years)		
14-18	384	93.2
Above 19	28	6.8
mean ±SD =16.87±1.02		
Sex		
Male	224	54.4
Female	188	45.6
Father Education		
No education	44	10.7
Read & write	17	4.1
Primary	22	5.3
Secondary	91	22.1
SlC	101	24.5
Higher Education	137	33.3
Mother Education		
No education	95	23.1
Read & write	46	11.2
Primary	35	8.5
Secondary	58	14.1
SlC	94	22.8
Higher Education	84	20.4
Ethnicity		
Brahmin / Chhetri	151	36.7
Madhesi	146	35.4
Janajati	81	19.7
Dalit	22	5.3
Muslim	12	2.9
Religion		
Hindu	348	84.5
Kirat	33	8.0
Islam	20	4.9
Buddhist	6	1.5
Christianity	5	1.2

Table 1 A showed that less than two-thirds (93.2%) of students were aged 14- 18 years. Likewise, more than half (54.4%) of the students were male. One third (33.3%) of students' fathers' education had higher education and 20.4% of student's mother had gain higher education. Nearly equal percentage of respondents were from Brahman/Chhetri (36.7) and Madhesi (35.4) ethnicity, most of them (84.5%) were Hindu.

Table 1 B : Socio-demographic variable **n= 412**

Variables	Frequency	Percentage
Place of residence		
urban	263	63.8
Rural	149	36.2
Family history of breast cancer		
No	361	87.6
Yes	51	12.4
Source of information		
Internet	282	68.4
Health care worker	134	32.5
Radio	91	22.1
Newspaper	82	19.9
Television	73	17.7
Others	54	13.1

Table 1 B depicts that 63.8% of the students' place of residents were Biratnagar whereas only 36.2% of them from out of Biratnagar. Most of the students (87.6%) had no family history of breast cancer and more than two third of them received the information regarding breast cancer from internet.

Table 2: Knowledge on Breast Cancer **n= 412**

Variables	Frequency (f)	Percentage (%)
Investigation to diagnose breast cancer*		
Scan and X-ray	273	66.3
Breast MRI	203	49.3
Breast exam	179	43.4
Breast ultra sound	132	32.0
Diagnostic mammogram	57	13.8
Biopsy	32	7.8
Breast cancer is preventable disease		
Prevention for breast cancer		
Screening helps in early diagnosis	371	90.0
Maintain healthy weight	344	83.5
Physical activity	343	83.3
Limit or avoid alcohol	323	78.4
Regular screening	232	56.3
Breast feeding after delivery	228	55.3
Screening of breast cancer by		
MRI	317	76.9
X-ray	297	72.1
Breast self-examination	250	60.7
Mammography	114	27.7
Breast self-examination		
Done monthly	299	72.6
Done after 7 days of menstruation	295	71.6
Done using palm of the hand	235	57.0
Helps in early diagnosis	228	55.3
Done in front of mirror	203	49.3
Treatment of breast cancer		
Hormonal	244	59.2
Surgery	133	32.3

Chemotherapy	77	18.7
Radiation	62	15.2
Complication of breast cancer		
Pain	319	77.4
Treatment related complicated	230	55.8
Liver complication	150	36.4
Lung complication	48	11.7
Bone complication	33	8.0
Brain complication	27	6.6

Table 2 depicts that 66.3% of respondents said that use of scan and x-ray and 49.3% breast MRI can diagnose breast cancer. None of the respondents responded about breast cancer is preventable disease. While asking about breast self-examination 55.3% had said it helps in early diagnosis. Surgery and radiation therapy are the major treatment for breast cancer had said by 70.9%.

Table 3: Level of Knowledge on Breast Cancer **n= 412**

Level of knowledge	Frequency (f)	Percentage (%)
Good Knowledge	106	25.7
Poor Knowledge	306	74.3
Mean Score ± SD	4.3 ± 2.01	

Table 3 depicts the level of knowledge on breast cancer among respondents in which one fourth of the respondents had good knowledge (25.7%) while more than two thirds of them (74.3%) had poor knowledge.

Table 4: Association of level of knowledge with socio-demographic variables (Bivariate Analysis) n=412

Variables	Level of Knowledge		Unadjusted OR	CI	p-Value
	Good f (%)	Poor f (%)			
Age (In years)	20	286	0.754		
14-18	9	97		0.332-1.711	0.499
Above 19					
Sex	56	168	1.087	0.698 – 1.693	0.712
Male	50	138			
Female					
Religion	11	45	0.672	0.334-1.352	0.265
Hindu	95	261			
Others**					
Educational Status (mother)#	42	136	0.388	0.523-1.286	0.388
Below secondary	64	170			
Secondary & above					
Family History of cancer	89	272	1.155	0.929-1.536	0.193
No	17	34			
Yes					

Table 4 shows the uni-variate analysis shows that statistically significant association between level of knowledge and socio-demographic variable. There is no significant association between level of knowledge and age, sex, religion, place of resident, father/ mother education and family history of cancer.

DISCUSSION

The present study finding shows that almost all (93.2%) of students were below 19 years of age, more than half (54.4%) were male, one-third were Brahmin/Chhetri and same proportion of Madhesi ethnic background whereas most of them were Hindu and only 1.5% and 1.2% were Buddhist and Christian respectively by religion. One-third of the students'

father had attained higher education whereas only 20.4% of students' mother had higher education and about two-third were the urban residents. Breast cancer has high tendency of hereditary occurrence and the siblings and first-degree relatives are at higher risk. Only 12.4% had positive family history of breast cancer. Similar findings were reported by studies from Nepal where 20.2% and Bangladesh where 18% of students reported positive family history (mother, aunt, sister/cousin, grandmother) of breast cancer.[6] Nepal and Bangladesh, neighboring countries of South-East Asia and both belong to low-middle income countries. People in these countries share similar lifestyle pattern and moreover, the geo-political make-up of the countries are similar as well. Internet was the most common source of information as verbalized by the students followed by health worker (32.5%) and radio/FM (22.1%) respectively. This may be due to the increased use of social media in recent years the similar types of setting and population. [12]

Cancer is an abnormal and uncontrolled cell replication. Half of the students correctly answered the meaning of breast cancer and only 11.9% correctly answered that it is non-communicable. Similarly, only half of them responded correctly that older women are more likely to have breast cancer. Regarding the knowledge on risk factors, family history of breast or ovarian cancer was the most common risk factor identified by students (45.6%) followed by consumption of tobacco and alcohol (38.8%), and chronic inflammation of breast (35.2%). Different intervention studies on knowledge on breast cancer have revealed such increase reported the similar findings. Likewise, change in skin color (73.3%) [25, 6, 12]

Likewise, less than one thirds (27.7%) of the respondents can answered mammogram can diagnosed breast cancer. Similarly, coherent finding revealed that Mammography as a diagnostic modality was considered by 61.4% population. [18] Likewise, the present study finding shows that sonly 38.1% of respondent answered the mass or lump as a featured of breast cancer. The cross-sectional study conducted basic sciences college in Bengaluru finding revealed that the more than half (58%) of the respondents had knowledge on breast lump. Similarly, only less than one third (31%) of the respondents had answered nipple discharged on breast cancer.[19] Another Malaysian study found that knowledge of breast cancer was low among young and less educated women. [26]

Present study finding shows that one fourth of the respondents had good knowledge (25.7%) and more than two third (74.3%) of respondents had poor knowledge. Similar finding revealed that more than three-fourth (75.4%) of respondents had inadequate. and only 1.6% had adequate knowledge regarding Breast Self-Examination, in contrast, after the intervention the adequate knowledge was increased to 62.3%. [11] Studies conducted with female students in Turkey, Malaysia and India have showed significantly improved knowledge and awareness of breast cancer after educational interventions using various health educational tools such as group discussion sessions, video demonstration and pamphlets. 20, [21, 22] The study was conducted in Nepal, the finding noted that adolescent girls possess positive knowledge and perceptions regarding the breast cancer care, specifically concerning initial signs and symptoms. [27]The another similar finding revealed that over 87% of students had poor or inadequate awareness of breast cancer screening. [29] Another study inconsistent finding indicates that among the participants, 71% were aware that breast cancer can affect a single breast, while 29% had no such knowledge. Additionally, 74% knew that breast cancer can involve both breasts, whereas 26% were unaware. Regarding disease management, 54.5% of students understood that breast cancer is manageable when detected early, while 45.5% lacked this awareness. [30]

Present study findings illustrated that there is no significant association between level of knowledge and mother 's education between. Participants whose father education level "Secondary & above" were more likely to have good knowledge (OR: 0.621, statistically significant, p-value 0.388) than below secondary. Similarly, the study revealed a contrasting result compared to earlier reports: women who had completed secondary and tertiary education were two and four times more likely, respectively, to engage in breast cancer screening practices (secondary: AOR = 2.46; 95% CI: 1.12–5.38; tertiary: AOR = 4.00; 95% CI: 1.48–10.86). [31] There is no significant association between level of knowledge and family history of cancer. The contradict finding revealed that limited

knowledge about breast cancer was significantly associated with not having a family history of the disease (AOR = 4.5; 95% CI: 2–10), being a first-year student (AOR = 4; 95% CI: 1.3–3.3), rural residence, and being a second-year student (AOR = 2; 95% CI: 1.2–3.3). [32]

CONCLUSION

The study finding concluded that the level of knowledge on breast cancer among respondents was one fourth of the respondents had good knowledge. There are no statistically significant association between the level of knowledge on breast cancer and socio-demographic factors, including age, place of residence, and family history of cancer. So, awareness program may enhance the knowledge of the students.

ACKNOWLEDGEMENT

The authors would like to special thanks to Tribhuvan University Institute of Medicine Biratnagar Nursing Campus for providing funds to conduct this study. The authors also would like to thank the participants for providing valuable information.

Conflict of Interests: There is no any conflict of interest

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