Impact of a Health Education Intervention Programme on Breast Self Examination among College Girls of Chitwan, Nepal

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ABSTRACT

Introduction: Breast self-examination (BSE) is a screening method that is cheap, non-complicated, and non-invasive. The purpose of BSE is to become familiar with the way your breasts normally look and feel. Hence, this study was conducted to assess the impact of a health education intervention program on BSE among College students of Chitwan.

Methods: A College-based pre-experimental study was done among 90 bachelor-level students of a government College in Bharatpur Metropolitan of Chitwan District, Nepal. An intervention health education program imparting knowledge was assessed and compared before and after intervention. The results were analyzed by using both descriptive as well as inferential statistics.

Results: A total of 90 female College students aged 18-23 years were included in the sample. The level of knowledge of students on BSE has increased significantly post-intervention as compared to pre-intervention. Before intervention 50% had inadequate knowledge and after intervention 97.8% had adequate knowledge. The test of significance revealed that the increment in BSE knowledge score due to program intervention was highly significant (P<0.001). This study also found that there was a difference in the mean pretest awareness score according to women pursuing BBA (p<0.036). Based on the mean score, the score was significantly higher among women who have never performed a breast examination (P<0.020)

Conclusion: The knowledge of BSE was observed to be inadequate in respondents but there was a significant improvement after the intervention.

Keywords: Breast Self Examination; College Girls; Health Education; Intervention

INTRODUCTION

Breast cancer typically affects women in which breast cells mutate, grow out of control, and form tumors.[1,2] As of the end of 2020 there were 7.8 million women alive who were diagnosed with breast cancer and 685000 deaths caused by breast cancer globally which makes breast cancer the world's most prevalent cancer occurring in women at any age after puberty.[3] Among women breast cancer accounts for 1 in 4 cancer cases and for 1 in 6 cancer deaths, which ranks on top for incidence and mortality in the vast majority of countries. The mortality-to-incidence ratio of breast cancer in low-income countries (LICs) is three times higher than in high-income countries.[4] In Nepal breast cancer is ranked as the second most leading cancer after cervical cancer of which breast cancer incidence is 17.1% and cervical cancer is 19.4% of total new cases of cancer among female in 2020.[5] The number of breast cancer is rising all around the globe including in Asia and Nepal. Age, early menarche, late menopause, null-parity, positive family history, excessive fat consumption, alcohol, and smoking are all frequent risk factors for breast cancer found in Asian women.[6,7]

Breast self-examination, clinical breast examination, and mammography screening are common methods for detecting breast carcinoma. Chemotherapy, radiation, and modified mastectomy are commonly used options for treatment.[8,9] BSE is a patient-centered, cheap, and non-invasive method of screening for breast cancer, which improves the chances of early breast cancer detection.[10] BSE is usually recommended for each woman higher

than the age of 20 years to be done for 20 minutes once monthly, between the seventh and tenth days of the menstrual cycle (2–3 days after the menses has gone), and goes an extended manner in detecting breast. [11]

The death rate from breast cancer is high in Nepal because most of the cases are diagnosed at the advanced stage and women may receive inadequate treatment, pain relief, or palliative care. Socio-economic disparities and insufficient financial resources hinder the prevention of breast cancer in Nepal.[12] Most of the tumors of the mammary gland are self-discovered and if breast cancer is detected at an early stage its survival rate will be very high.[13] By the time 85% of patients visit specialized care the tumor is more than 5 cm, while BSE can detect the tumor at the size of 1cm, so information, education, and communication (IEC) play a vital role in the recognition of abnormal breast condition.[14] Therefore, this study was conducted to assess the impact of a health education intervention program on BSE among College students of Chitwan.

METHODS

A college-based pre-experimental (pre and post-intervention) study was done among bachelor's level girls of Bharatpur municipality, Chitwan. A study conducted in Biratnagar showed the prevalence of BSE 75.4%[15] using this as a prevalence with 95% CI and 5% margin of error sample size was calculated by using this formula n=z2pq/e2. The optimal sample size for this research was calculated to be 88. Ethical approval was taken from the Institutional Review Committee of the College of Medical Sciences and Teaching Hospital (Ref no. COMSTH-IRC/2024-012).

All participants who participated in the pretest participated in the post-test. Based on the inclusion criteria Bachelor-level girls of BBA and BBS who have given written consent and who were willing to participate were included in the study and those who didn't give written consent and don't want to participate in the study were excluded to participate on the study. The data was cleaned and checked for completeness and accuracy before subsequent analysis in SPSS version 17 software. A paired t-test was used to test the significance of effectiveness and an independent sample t-test and one-way ANOVA were used to test the associating factors.

RESULT

Assessment of knowledge on BSE before and after the intervention was done and in addition, socio-demographic determinants were explored. Table 1 reveals that among 90 respondents, the majority of respondents were from the age group 18-20 years, consisting of 74.4% and the mean age was 19.86 ± 1.303 years. More than half of the respondents (55.6%) were from Business Sciences faculty. Majority of participants followed Hindu religion(81.1%) and 61.1% belonged to the Brahmin/chhetri community. The major source of information about BSE was from the Internet (74.4%) followed by health professionals (22.2%) and TV/radio (10%). The majority of the participants had no history of breast cancer in the family and had never performed self-breast examination.

Table 1: Socio-demographic profile of the respondents

Characteristics	Category	Frequency	(%)
Age group Mean ±SD 19.86 ± 1.303	18-20	67	74.4
	21-23	23	25.6
Educational Faculty	BBA	40	44.4
	BBS	50	55.6
Religion	Hindu	73	81.1
	Buddhist	13	14.4
	Christian	4	4.4
Ethnicity	Brahmin/ Chhetri	55	61.1
	Janajati	29	32.2
	Dalit	6	6.7
Type of Family	Nuclear	55	61.1
	Joint	35	38.9
Source of information	TV/Radio	9	10.0
	Internet	67	74.4
	Health Professional	20	22.2
	Others	4	4.4
History of Breast Cancer in Family	Yes	1	1.1
	No	89	98.9
Ever Performed a Self-breast Examination	Yes	16	17.8
	No	74	82.2

Table 2 : Respondent's pre and post-knowledge level on BSE

Level of Knowledge	Before Intervention (Pre-test)		After Intervention (Post-test)	
	n	%	n	(%)
1. Inadequate (<50%)	45	50	0	0
2. Moderate 3. (51%-75%)	42	46.7	2	2.2
4. Adequate (>75%)	3	3.3	88	97.8

The changes in knowledge level before and after providing an educational intervention program on BSE is explicited in table 2. The result reveals that before the program intervention, 50% of respondents had inadequate knowledge but after the intervention, all of the participants were able to gain either a moderate or adequate level of knowledge. Similarly, only 3.3% of the respondents had adequate knowledge before intervention and it significantly increased to 97.8% after the program intervention (post-test).

Table 3: Significance test on the effectiveness of structured teaching program on BSE

	Awareness Score (Mean ± SD)	Paired t-test	P-value
Pre-test	13.24 ± 4.28	25.68 Df= 89	**<0.001**
Post-test	25.61 ±1.80		
Difference	12.36 ± 4.56		

Table 3 indicates the significance of test results on the effectiveness of structured teaching programs on BSE. Paired t-test was applied to test the significance of the score obtained before and after the intervention program. The observed mean awareness score before the intervention was 13.24 with a standard deviation of 4.28; after the intervention, it increased to 25.61 with a standard deviation of 1.80. In the significance test, the t-statistic was obtained as 25.68 for awareness with p <0.001, conforming to the educational intervention program as highly significant. Thus, the program was effective in improving awareness of BSE among college girls of Chitwan.

Table 4, reveals the difference in the mean awareness score of the respondents according to selected variables before the program intervention were presented using one-way ANOVA and independent samples t-test. The variables like age, Educational Faculty, religion, ethnicity, type of Family, History of Breast Cancer in the Family, ever Performed a Self-breast Examination were run to find the significance of variables. There was a difference in the mean awareness score according to the educational faculty of the respondents. Based on the mean score, the score was significantly higher among women pursuing BBA (Bachelors in Business Administration)(p=<0.036). Conversely, no significant difference in mean score was depicted with age, ethnicity, religion, or marital status. Likewise, the mean awareness score was also higher among those who had never performed a breast examination and was found statistically significant.

Table 4: Differences in mean knowledge score by selected socio-demographic variables of the participants

Characteristics	Category	Freq	Mean ± SD	P-value
Age group	18-20 years	67	12.89 ± 4.38	0.330
	21-23 years	23	14.00 ± 3.97	
Educational Faculty	BBA 1st year	40	14.30 ±3.29	0.036
	BBS 1st year	50	12.40 ± 4.79	
Religion	Hindu	73	13.63 ±4.19	0.146
	Buddhist	13	12.07 ±4.69	
	Christian	4	10.00 ± 3.16	
Ethnicity	Brahmin/ Chhetri	55	13.14 ± 4.31	0.586
	Janajati	29	13.06 ± 4.26	
	Dalit	6	15.00 ± 4.38	
Type of Family	Nuclear	55	12.70 ± 3.89	0.138
	Joint	35	14.08 ± 4.77	
History of Breast Cancer in Family	Yes	1	7	0.144
	No	89	13.31 ± 4.25	
Ever Performed a Self-breast Examination	Yes	16	11.08 ± 3.77	**0.020**
	No	74	13.72 ± 4.25	

DISCUSSION

This pre and post intervention study aimed to assess the impact of a health education intervention on Breast Self-Examination (BSE) among Bachelor-level college girls in Bharatpur, Chitwan. Among the 90 respondents, the majority were aged 18-20 years (74.4%), with a mean age of 19.86±1.303 years. Most participants were Hindu (81.1%) and from the Brahmin/Chhetri community (61.1%), with 61.1% living in nuclear

families. The internet was the primary source of BSE information (74.4%), followed by health professionals (22.2%) and TV/radio (10%). This finding is consistent with a study by Sapkota D. et al.[15] in Biratnagar, which also identified the internet as the main source of BSE information among higher secondary school girls. The reliance on the internet for health information highlights the importance of ensuring that accurate and reliable resources are available online to educate young women about BSE. However, this finding contrasts with a study conducted in Dhanusha by Prakash P. et al.,[16] where the majority of participants cited health personnel as their primary source of BSE information, rather than the internet. This discrepancy may be attributed to differences in access to digital resources and health services between the regions, as well as varying levels of internet penetration and health literacy. It highlights the importance of considering local context when designing and implementing health education programs, ensuring that the most effective channels for information dissemination are utilized for each specific population.Most participants in this study had no family history of breast cancer. This finding is consistent with a study conducted by Koirala D. et al.[17] in Pokhara, where only 3.4% of respondents reported a family history of breast cancer, and a study by Mousta DG et al.[18] among female students at Zagazig University.

In Egypt, where 17.2% reported a family history of the disease. The findings are consistent with yet another study conducted among Arab women in the UAE by Rabbani SA, in which most participants did not have any family history of breast cancer.[19] In both studies, family history of breast cancer was limited to close relatives such as mothers, sisters, and aunts. The low prevalence of breast cancer in the family likely contributes to the lack of prior BSE practice among participants. This underscores the importance of educational interventions to raise awareness and promote proactive health behaviors, especially in populations with limited personal or familial exposure to breast cancer. Similarly, most participants had never performed BSE before the intervention, which is consistent with a study conducted by Mahmoud MH et al.[20] at the Faculty of Nursing, Benha University, in Benha City. The lack of prior BSE practice among participants likely stems from limited awareness and knowledge about the procedure, underscoring the importance of educational interventions. Such programs are crucial for equipping young women with the necessary skills and information to perform BSE regularly, thereby promoting early detection and proactive health management. Regarding changes in knowledge levels before and after the educational intervention on BSE, the study revealed that before the intervention, 50% of respondents had inadequate knowledge. Post-intervention, all participants achieved either moderate or adequate knowledge levels. Notably, only 3.3% of respondents had adequate knowledge before the intervention, which significantly increased to 97.8% after the program. This substantial improvement mirrors findings from a study by Sapkota D. et al.[15] in Biratnagar, Abd Elsabour M et al. in Egypt [21], and Tiwari A. in Chhattisgarh India [22] where educational interventions similarly enhanced BSE knowledge. These results highlight the effectiveness of targeted educational programs in significantly boosting awareness and understanding of BSE among young women, thereby promoting proactive health behaviors. The findings on the effectiveness of the structured teaching program on BSE were significant. A Paired t-test was used to compare the scores obtained before and after the intervention. The mean awareness score before the intervention was 13.24 with a standard deviation of 4.28 after the intervention, the mean score increased to 25.61 with a standard deviation of 1.80. The t-statistic for this increase in awareness was 25.68, with a p-value of <0.001, indicating that the educational intervention was highly significant in improving BSE awareness among college girls in Chitwan.

These results are consistent with findings from other studies, such as one conducted by Abd Elsabour M et al.[21] among female students at a university hostel in Port Said governorate, Egypt, where an educational health program about early detection of breast cancer and BSE also resulted in a p-value of <0.001. This alignment with existing literature further supports the effectiveness of structured educational programs in significantly enhancing knowledge and awareness of BSE. Consistent with this finding, a study conducted by EL-Lassy RB et al. at Damanhour University[23] also showed significant improvements in knowledge following an educational intervention. In their study, the mean knowledge scores of female employees increased from 57.16±13.04 before the intervention to 84.68±7.92 after the intervention (t=20.564, p<0.001). Another study conducted among female students of Birjand universities by Moodi M et al[24] depicted significance after independent student t-test on variations between pre- and post-tests in knowledge (p = 0.05). This consistency across different studies reinforces the effectiveness of educational programs in significantly enhancing awareness and knowledge of BSE, highlighting the crucial role of structured teaching interventions in promoting proactive health behaviors. The difference in the mean awareness score of the respondents according to selected variables before the program intervention was presented using one-way ANOVA and independent samples t-test. The variables like age, educational faculty, religion, ethnicity, type of Family, history of Breast Cancer in the

Family, and ever Performed Self-breast Examination were run to find the significance of variables. There was a difference in the mean awareness score according to the educational faculty of the respondents. Based on the mean score, the score was significantly higher among women pursuing BBA (p=<0.036). Conversely, no significant difference in mean score was depicted with age, ethnicity, religion, type of family, and history of breast cancer in the family.

CONCLUSION

This study assessed the impact of a health education intervention on BSE among college girls in Chitwan. The intervention significantly improved BSE knowledge, increasing the mean awareness score from 13.24 (± 4.28) to 25.61 (± 1.80) ($p < 0.001$). Significant differences were found based on educational faculty, with BBA students scoring higher ($p = 0.036$), and those who had never performed BSE ($p = 0.020$). No significant differences were observed for age, ethnicity, religion, or marital status. These findings suggest that targeted education can enhance BSE awareness and should be tailored to different educational backgrounds for maximum impact. Further studies are needed to confirm these results in broader clinical settings.

REFERENCES

1. Breast Cancer Cleveland Clinic. November 2023 [Full Text]
2. CDC Breast Cancer. What Is Breast Cancer? [Internet]. Centers for Disease Control and Prevention. 2023 [cited 2023 Nov 2]. [Full Text]
3. Breast cancer Oct 31 2023. [Full Text]
4. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA: A Cancer Journal for Clinicians. 2021;71(3):209–49. [Full Text] [Pubmed] [DOI]
5. 524-nepal-fact-sheets.pdf [Internet]. [cited 2023 Oct 31]. Available from: https://gco.iarc.fr/today/data/factsheets/populations/524-nepal-fact-sheets.pdf [Full Text]
6. Youn HJ, Han W. A review of the epidemiology of breast cancer in asia: focus on risk factors. Asian Pac J Cancer Prev. 2020;21(4):867–880. doi:10.31557/APJCP.2020.21.4.867 [Full Text] [Pubmed] [DOI]
7. Nindrea RD, Aryandono T, Lazuardi L. Breast cancer risk from modifiable and non-modifiable risk factors among women in southeast asia: a meta-analysis. Asian Pac J Cancer Prev. 2017;18(12):3201– 3206. doi:10.22034/APJCP.2017.18.12.3201 [Full Text] [Pubmed] [DOI]
8. ACS Breast Cancer Screening Guidelines 2023 Nov 8. Available from: society- https://www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection/american- cancer- recommendations-for-the-early-detection-of-breast-cancer.html [Full Text]
9. Dhakal R, Noula M, Roupa Z, Yamasaki EN. A Scoping Review on the Status of Female Breast Cancer in Asia with a Special Focus on Nepal. BCTT. 2022 Aug 26;14:229–46. [Full Text] [Pubmed] [DOI]
10. Baloushah S, Salisu WJ, Elsous A, Muhammad Ibrahim M, Jouda F,Elmodallal H, etal. Practice and 12 barriers toward breast self-examination among Palestinian womeninGaza City, Palestine. The Scientific World Journal. 2020; 2020:7484631. [Full Text] [Pubmed] [DOI]
11. Basegio DL, Corrêa MPA, Kuiava VA, Quadros C, Mattos M, Pavan NR. The importance of breast selfexaminationas adiagno stic method ofbreast cancer. Mastology. 2019; 29(1):14–9. [Full Text] [DOI]
12. Giri M, Giri M, Thapa RJ, Upreti B, Pariyar B. Breast Cancer in Nepal: Current status and future directions. Biomed Rep. 2018 Apr;8(4):325–9. [Full Text] [Pubmed] [DOI]
13. Iranmakani S, Mortezazadeh T, Sajadian F, Ghaziani MF, Ghafari A, Khezerloo D, et al. A review of various modalities in breast imaging: technical aspects and clinical outcomes. Egyptian Journal of Radiology and Nuclear Medicine. 2020 Apr 16;51(1):57. [Full Text] [DOI]
14. Mazzini CB. Knowledge and practice of the breast self exam on students from a public university in Lima. Arch Cancer Res. 2016; 4: 3. PubMed: https://pubmed.ncbi.nlm.nih.gov/34007246/ [Full Text] [Pubmed] [DOI]
15. Sapkota D, Parajuli P, Kafle TK. Effectiveness of Educational Intervention Programme on Knowledge Regarding Breast Self Examination Among Higher Secondary School Girls of Biratnagar. Birat Journal of Health Sciences. 2017 Mar 31;1:13. [Full Text]
16. Prakash P, Khadka S, Silwal M, Chandra A. Assessment of knowledge on breast self-examination among female adolescent: a cross-sectional study. Clinical Journal of Obstetrics and Gynecology. 2022 Mar 23;5(1):036-41. [Full Text]
17. Koirala D, Silwal M, Pokhrel S, Adhikari R. Awareness of Breast Self-Examination among Female Community Health Volunteers of Pokhara. [Pubmed] [DOI]
18. Moustafa DG, Abd-Allah ES, Taha NM. Effect of a breast-self examination (BSE) educational intervention among female university students. Am J Nursing Sci. 2015 Jun;4(4):159-65. [Full Text] [DOI]

19. Rabbani SA, Al Marzooqi AM, Srouji AE, Hamad EA, Mahtab A. Impact of community-based educational intervention on breast cancer and its screening awareness among Arab women in the United Arab Emirates. Clinical Epidemiology and Global Health. 2019 Dec 1;7(4):600-5. [Full Text] [DOI]

20. Mahmoud MH, Sayed SH, Ibrahim HA, Abd-Elhakam EM. Effect of health belief model-based educational intervention about breast cancer on nursing students' knowledge, health beliefs and breast self-examination practice. International Journal of Studies in Nursing. 2018 Jul 30;3(3):77. [Full Text] [DOI]

21. Abd Elsabour M, Qalawa AS, Mohamed AM, Elalem OM. Impact of health intervention program regarding breast self-examination among Port Said Female University Students. Journal of American Science. 2013;9(3). [Full Text]

22. Tiwari A, Naik M. Effectiveness of structured teaching program on knowledge and practice regarding breast self-examination among college girls in a selected college of Bhilai, Chhattisgarh, India. Int J Community Med Public Health. 2018 Sep;5(9):4028-36. [Full Text] [DOI]

23. EL-Lassy RB, Madian AA. Impact of a health education intervention program about breast self examination on female employees at Damanhour University. Zagazig Nursing Journal. 2015 Jul 1;11(2):21-41. [Full Text]

24. Moodi M, Mood MB, Sharifirad GR, Shahnazi H, Sharifzadeh G. Evaluation of breast self-examination program using Health Belief Model in female students. Journal of research in medical sciences: the official journal of Isfahan University of Medical Sciences. 2011 Mar;16(3):316. [Full Text] [Pubmed]