Effectiveness of Educational Intervention Programme on Knowledge Regarding Breast Self Examination Among Higher Secondary School Girls of Biratnagar

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ABSTRACT

Introduction

Breast self-examination (BSE) is a self-generated, non-invasive and non-irradiative method of breast cancer detection. Self examination of the breasts each month after the menstrual cycle is the simplest yet extremely important way to detect early breast cancer. It has been observed that women can detect 95% of breast cancers and 65% of early minimal breast cancers themselves. This method is harmless, less time consuming and can be performed by any woman.

Objective

To assess the effectiveness of educational intervention programme regarding Breast Self Examination among girl students of study school.

Methodology

Pre experimental one group pre-test post-test design was adopted for this study. In total, 61 girls were included. The result were analysed by using both descriptive as well as inferential statistics.

Results

In pre-test 75.4% 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%. The overall mean score was increased from 33.07% to 85.14%. The test of significance revealed that the increment in BSE knowledge score due to program intervention was highly significant (P< 0.001).

Conclusion

The educational intervention programme on BSE was found to be highly effective as the knowledge score was significantly increased after intervention of the package among higher secondary school girls.

KEYWORDS

Breast cancer, examination, school girls

INTRODUCTION

Breast cancer is the most common cancer in women worldwide with 1.7 million new cases diagnosed in 2012. This represents about 12% of all cancer in women and there were 6.3 million women alive who had been diagnosed with breast cancer in the previous five years. Since the 2008 estimates, breast cancer incidence has increased by more than 20%, while mortality has increased by 14%. Incidence has been increasing in most regions of the world but there are huge inequalities between rich and poor countries. Incidence rates remain the highest in more developed regions, however mortality is relatively much higher in less developed countries due to a lack of early detection and access to treatment facilities.[1]

The survival rates of breast cancer differs greatly worldwide, ranging from 80% or over in North America, Sweden and Japan, to around 60% in middle-income countries and below 40% in low-income countries.[2] In India, breast cancer accounts for 19-34% of all cancer cases. The Hospital based cancer registry of Nepal has shown in total 2910 cancer patients in the year 2009; among the total cancer cases, 211 (7.2%) were breast cancer and is the second most commonly diagnosed cancer in Nepal.[3] Another recent multi hospital based findings reveal that there is shift of breast cancer among young females in Nepal.[4]

Breast Self-Examination (BSE), Clinical Breast Examination (CBE), and Mammography are available preventive technique to detect breast cancer. CBE and Mammography require hospital visit and specialized equipment and expertise whereas BSE is an inexpensive tool that can be carried out by women themselves and highly recommended in developing countries where health facilities are not easily accessible.[5]

Evidences show that women can detect 95% of breast cancers and 65% of early minimal breast cancers by themselves and the estimated reduction of mortality by BSE was 18% and may increase particularly for competent women.[6] BSE is specifically designed to detect the tumour at an early stage when the small painless lump of cancer is often ignored. Although little is known about the prevention of breast cancer, the chances of survival appears to be good, if it is found early and treated promptly.

BSE or regularly examining breasts by self can be an important way to find a breast cancer at early stage, when it is more likely to be treated successfully. Not every cancer can be found this way, but it is a critical step one can and should take for own self. Regular monthly BSE is an essential health maintenance activity. Teaching skills of BSE can be life saving and with regular performance, malignancy may be discovered at an earlier stage, which can save lives.

Despite an increase in women literacy rate and knowledge about breast cancer, there are certain barriers to practice BSE, like worry about breast cancer, embarrassment, lack of time, unpleasant procedure, lack of privacy, fear of discovering a lump and unfavorable attitude towards Breast Self Examination.[7,8,9,10] So, to remove this barrier awareness programmes are showing signs of success, with more women being screened and treated for breast cancer. The objective of this study was to evaluate the effectiveness of Breast Self Examination educational intervention package and its associating factors.

METHODOLOGY

Quasi experimental one group pre-test post-test study design was adopted to see the effectiveness of the educational package. All girl students of grade 11 and 12 from Marryland Higher Secondary School of Biratnagar city, meeting the eligibility criteria were selected for the study. The intervention package was given to 61 girls among 297 total girls of the school, which accounts about 15% of total girl population. School was selected by simple random sampling technique and sampling units were selected consecutively. Before, proceeding data collection, ethical approval was taken from ethical review committee of Nobel Medical College and Teaching Hospital, Biratnagar. Permission from the school authority was obtained and oral informed consent was taken from each participants. Standard self-administered questionnaire was developed by consulting the specialists. The tool was pre-tested for reliability on 10% students in the same school and those subjects were excluded from the final study. Pre-test information was collected before the intervention of educational package on Breast Self Examination. A protocol for educators was designed, BSE related posters, slide, leaflets were used extensively as teaching learning materials and at the end video clip was demonstrated regarding steps of BSE. After 2 weeks of educational intervention, post-test information was collected in same participants with same questionnaire. All the participants who were participated in the pre-test were also participated in the post-test. Data was cleaned and entered in MS Excel 2007 and analyzed using SPSS 17 version. Paired t-test was used to test the significance of effectiveness and independent sample t-test and one way ANOVA were used to test the associating factors.

RESULTS

Assessment of knowledge on BSE before and after intervention was done and in addition socio-demographic determinants were explored. Table 1 reveals that among 61 respondents, majority of respondents were from age

group 17-19 years, consisting of 65.6% and the mean age was 16.62 ± 1.19 years. Majority of respondents (70.5%) were from grade 12. The Hindu religion was followed by 96.7% respondents and majority of respondents (55.7%) belonged to upper high caste. While observing the educational status of respondents' parents, higher proportions (32.8%) of mothers had completed secondary level education and 29.5% fathers had also completed same level of education. Similarly, 47.5% of respondent's fathers were engaged in business occupation; in contrast, 82% mothers were housewives. The Mean income of the family was reported NRs 18788.5± 11307.5.

Table 1: Socio-demographic profile of the respondent

Characteristics	Category	Frequency	Percentage
Age	14-16 years	21	34.4
	17-19 years	40	65.6
Mean ± SD = 16.62 ± 1.192			
Level of Education	Class 11	18	29.5
	Class 12	43	70.5
Religion	Hindu	59	96.7
	Buddhist	2	3.3
Ethnicity	Upper High Caste	34	55.7
	Relatively Advantaged Janajati	7	11.5
	Non-Advantaged and Others	9	14.8
	Non Advantaged Janajati	11	18.0
Mother's Education	Illiterate	10	16.4
	Literate	10	16.4
	Primary Level	13	21.3
	Secondary Level	20	32.8
	Higher Secondary and Above	8	13.1
Father's Education	Literate	17	27.9
	Primary Level	11	18.0
	Secondary Level	18	29.5
	Higher Secondary and Above	15	24.6
Mother's Occupation	Service	5	8.2
	Business	6	9.8
	Housewife	50	82.0
Father's Occupation	Farmer	11	18.0
	Service	21	34.5
	Business	29	47.5
Family Income	NRS 5000 - 10000	8	13.1
	NRS 10001 - 15000	10	16.4
	NRS 15001 - 20000	18	29.5
	NRS 20001 - 25000	19	31.1
	NRS 25001 and Above	6	9.8
Mean ± SD = 18788.52 ± 11307.50			

Figure 1: Frequency distribution of respondents according to sources of information regarding BSE

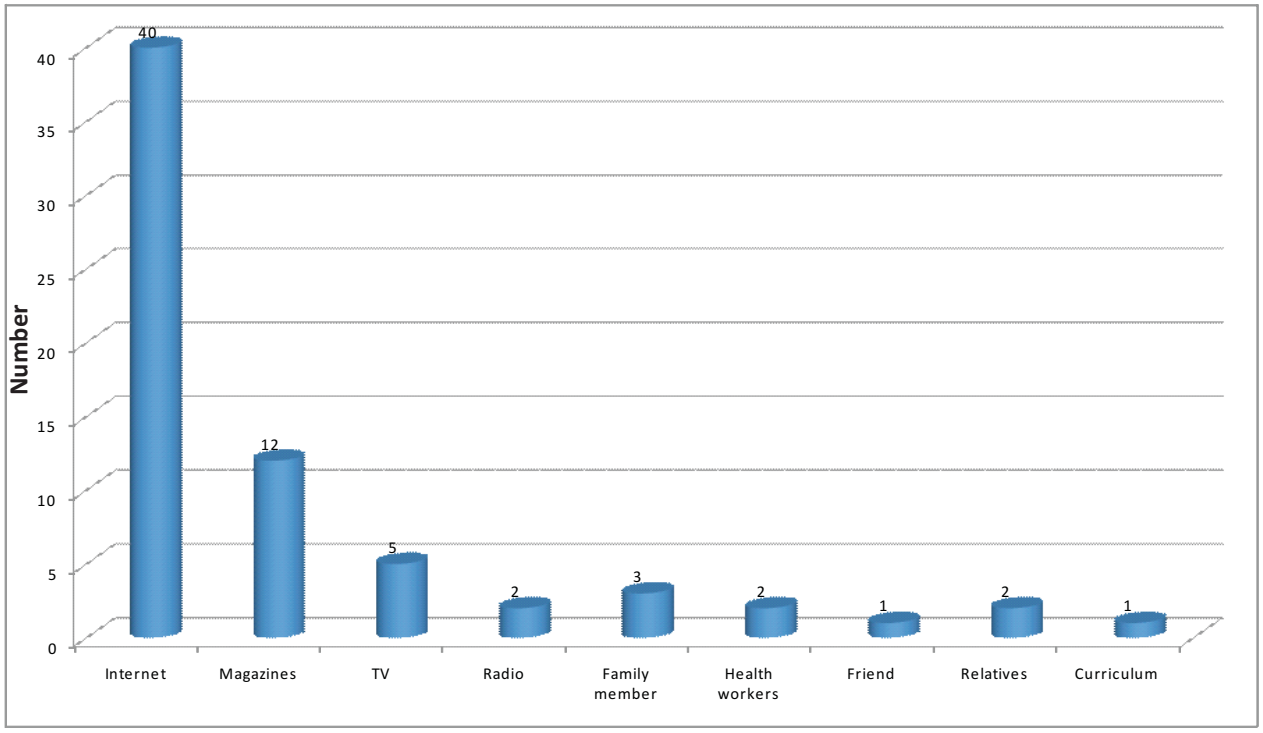

Table 2: Respondents pre and post test knowledge level on BSE

Level of Knowledge	Before Intervention (Pre-Test)		After Intervention (Post-Test)	
	Frequency	Percentage	Frequency	Percentage
Inadequate (<50%)	46	75.4	0	0
Moderate (51-75%)	14	23.0	23	37.7
Adequate Level (>75%)	1	1.6	38	62.3

The changes in knowledge level before and after providing educational intervention programme on BSE has been shown in table 2. The result reveals that before the program intervention 75.4% respondents had inadequate knowledge but after the intervention all of participants were able to gain either moderate or adequate level of knowledge. Similarly, only 1.6% of the respondents had adequate knowledge before intervention and it was significantly increased to 62.3% after the programme intervention (post-test).

Table 3: Significance test on effectiveness of educational intervention programme on BSE

Intervention Details	Knowledge score of Students (%)		Test Statistic	P-Value
	Mean Score	Standard Deviation		
Before Intervention	33.07	16.88	t=23.448	p<0.001***
After Intervention	85.14	11.98	df=60	
Difference	52.07	4.9		

**** Strongly Significant*

In table 3, the significance test results on effectiveness of educational intervention programme was illustrated. Paired t-test was applied to test the significance on the score obtained before and after intervention programme on BSE. The observed mean knowledge score before intervention was 33.07% with standard deviation 16.66 whereas, after the intervention the same figure was reached to 85.17% with SD 11.98. In the significance test, the t-statistic was obtained 23.448, with $p<0.001$, conforming the educational intervention programme highly significant.

In table 4, the differences in mean knowledge score of the respondents by socio-demographic factors on Breast Self Examination before the program intervention are presented. The variables like age, level of education, religion, ethnicity, respondent's father's and mothers' education, main occupation and monthly income of the family were run to find the significance of variables. Among 8 variables, only the mothers' education found to be significantly related with knowledge score of Breast Self Examination. Hence, it is confirmed that mother's education plays an important role to increase the Breast Self Examination knowledge among the girl adolescents.

Table 4: Difference in mean knowledge score by selected socio-demographic variables of respondents

Variables	Category	Number	Mean ± SD	P Value
Age	14-16 Years	21	32.49 ± 19.65	P>0.05
	17-19 Years	40	33.38 ± 14.0	
Level of Education	Class 11	18	33.38 ± 14.5	p>0.05
	Class 12	43	33.66 ± 19.12	
Religion	Hindu	59	33.30 ± 17.11	P>0.05
	Buddhist	2	26.47 ± 4.15	
	Upper High Caste	34	35.12 ± 18.57	
	Relatively Advantage			
Ethnicity	Janajati	7	29.41 ± 13.58	
	Non-Advantage and			P>0.05
	non Dalit Terai	9	36.60 ± 17.09	
	Non-Advantage Janajati	11	26.20 ± 11.87	
	Illiterate	10	22.94 ± 7.56	
	Literate	10	30.58 ± 15.38	
Mother's Education	Primary	13	34.38 ± 17.45	P<0.05*
	Secondary	20	32.64 ± 17.64	
	Higher Secondary			
	and Above	8	47.79 ± 17.05	
	Literate	17	26.64 ± 14.42	
Father's Education	Primary	11	30.48 ± 14.36	
	Secondary	18	34.64 ± 16.24	P>0.05
	Higher Secondary and Above	15	40.39 ± 19.99	
Mother's Occupation	Business	5	45.88 ± 20.96	
	Service	6	29.41 ± 15.78	P>0.05
	Housewife	50	32.23 ± 16.39	
Father's Occupation	Farmer	11	24.59 ± 13.36	
	Service	21	36.41 ± 19.74	P>0.05
	Business	29	33.87 ± 15.21	
Income of Family per month	NRS 5000 - 10000	8	29.41 ± 12.17	
	NRS 10001 - 15000	10	28.23 ± 16.35	
	NRS 15001 - 20000	18	33.66 ± 18.02	P>0.05
	NRS 20001 - 25000	19	35.60 ± 18.23	
	NRS 25001 and above	6	36.27 ±18.00	

** Significant (paired t-test was used at 5% level of significance)*

DISCUSSION

Knowledge on BSE was assessed through self-administered structured questionnaire. Among the 61 respondents, majority of respondents were from age group 17-19 years, and the mean age was 16.62 ± 1.19 years. Majority of respondents (70.5%) were from grade 12 and Hindu religion was followed by 96.7%.

Out of total respondents, 82% of respondents have not heard about BSE and the major source of information was media during the baseline (pre-test). Similarly, 75.4% of the respondents have inadequate knowledge before the intervention but after the intervention package all participants were gained either moderate or adequate level

of knowledge. Similarly, only 1.6% of the respondents have adequate knowledge before intervention and it was significantly increased to 62.3% after the intervention. The socio-demographic variables like age, level of education, religion, ethnicity, respondent's father's and mothers' education, mothers' and fathers' occupation and monthly income of the family were run to find the association of variables with knowledge score before the intervention, however, only the respondents' mothers' education found to be significantly related with knowledge score of Breast Self Examination.

Findings of this study were supported by the study conducted by Shalin et al (2011). The study was conducted to determine the effectiveness of structured teaching programme on BSE among school going girls. They reported, only 5% had good knowledge and 22.5% had poor knowledge before intervention and after the intervention, none of the students had poor (inadequate) knowledge and 85% had good (adequate) knowledge.[12] They also found the intervention effective.

Similar Study conducted by Tuna A et al. on effectiveness of online education on BSE shows that 14% of respondents had average knowledge on BSE before intervention (structured teaching program) and after structured teaching programme 77.4% respondents had good knowledge level.[13]

A study conducted in Egypt by I.B.f. Kharboush et al on raising the Breast Health awareness among 486 women during 2009-2010 also supports this finding. Health education sessions were carried out to educate the women on BSE and the findings indicated a significant increase in the mean knowledge score, in pre-test 64 had knowledge regarding Breast Self Examination and 422 had no knowledge and in post intervention 485 had good knowledge.[14]

The findings were also supported by the similar study conducted by Shalini et al (2011), in Udupi district-India. The study was conducted to determine the effectiveness of structured teaching programme on BSE among school going girls. Mean knowledge score in pre-test was 27 whereas in post-test it was 50, t= 12.46, df =39 and p <0.05 indicating the structured teaching program was effective in improving the knowledge on BSE among school going girls.[12]

Another interventional study conducted by Tuna A et.al (2014) on effectiveness of online education on BSE supports the above findings which showed p<0.00 and overall increment of knowledge 63.4%, indicating teaching program was effective in improving the knowledge on BSE.[13]

Similar interventional study conducted by Ramalingam S et al (2012) on knowledge and attitude about breast cancer and BSE among school teachers in an urban area of Coimbatore among 34 teachers between age group 22-58 years also supports the above findings which showed that mean pre-test scores was 16.75 and post-test 22.50 respectively (p<.0001).[15]

An interventional study conducted by Shalin et al (2011) to determine the effectiveness of structured teaching programme on BSE among school going girls Udupi district - India revealed the similar findings, where, respondent's exposure to mass media was positively related with BSE pre-test knowledge score (p<0.05). However, the education level of respondents was not related which also support findings of this study.[12]

Another cross-sectional survey done by Aniebue PN et al. (2008) on awareness of breast cancer and Breast Self Examination among four hundred and twenty eight female secondary school teachers in Enugu Metropolis, South Eastern Nigeria revealed no significant relationship between age, educational attainment and knowledge of BSE which strongly supports findings of this study.[16]

An interventional study conducted by Moustafa DG on Effect of a Breast-Self Examination (BSE) educational intervention among 180 female university students[17] showed that mothers' occupation were significantly related with knowledge level of BSE which is slightly contradictory to the findings of this study.

This study is able to cover only 61 adolescent girls for the intervention package; large scale study in similar intervention in diverse setting can give better generalization.

CONCLUSION

The educational intervention programme on BSE was found to be highly effective as the knowledge score was significantly increased after intervention of the package among higher secondary school girls. Among the various socio-demographic variables only mothers' education found to be effective with pre-test knowledge score. Therefore, the government and other health agencies should focus to apply educational intervention package for breast self examination along with focus to increase the education level among women.

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CONFLICT OF INTEREST

None

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