Effectiveness of Model based Training on Self-Breast Examination among Reproductive Age Group Women in the Community

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Abstract

Introduction: Breast cancer (BC) is a global disease and is second leading cause of cancer death among women. Timely diagnosis with quick initiation of treatment reduces breast cancer mortality. Therefore, skill development on Self Breast Examination among the community women is essential.

Objectives: To disseminate information about screening method among reproductive age group women in community and to provide the skills on breast self-examination.

Methods: A descriptive cross-sectional study conducted in Urban Health Centre in New Delhi in which 104 women participants of age between 15 to 45 years were included in study. Data was collected with the help of a predesigned, pre-validated and pretested questionnaire. Participants were educated on breast self-examination and technique by using dummy breast model. Pre-Test and Post Test evaluation was done to assess skills on SBE.

Result: Two third of participants had never performed SBE. There was improvement in skill acquired by participants which revealed a mean Pre-test score of 1.91±2.25 which improved to 6.10±0.33 in Post test score and it was found to be statistically significant with $p<0.001$.

Conclusion: This study results confirms that there is general lack of knowledge about Self Breast Examination (SBE) among women in the community and also had poor skills on self-breast examination .Hence Self Breast Examination Module and demonstration of SBE was effective in enabling women in the community with knowledge and skills of Self-evaluation of Breast regardless of their level of education.

Keywords: *Breast Cancer, Breast Self-Examination, Skills*

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Introduction

Breast cancer is an alarming public health problem in both developed and developing countries. Globally in 2018 there were approximately 2 million new cases of cancer breast and major cause of cancer deaths among women [1, 2]. Across the globe incidence rates of

breast cancer vary from 19.3 per 100,000 women in Eastern Africa to 89.7 per 100,000 women in Western Europe[3]. In India among all cancers found in women, cancer breast is most common form of cancer and has overtaken cancer cervix[4]. As per GLOBOCAN 2018 about 1,62,468 new cases of cancer breast and 87,090 deaths resulted from breast cancer in India[5].

As most of the risk factors are non-modifiable risk nothing much can be done therefore regular screening for cancer breast is recommended to allow early case detection and thereby prevent death from breast cancer.

Though mammography is the most effective screening method there is limited availability of this service in health centers in India. It is also a very costly investigation procedure available therefore self-breast self-examination (SBE) is considered the most cost-effective method[6] for early detection of breast lump.

The fact that it can be done by the women herself at home provided she should know the correct method of doing Self Breast Examination. It has been observed that there is general lack of knowledge about Self Breast Examination among women in India. Inhibition among women to learn and discuss about SBE is another factor seen among women in Indian community.

Various studies have been published regarding awareness of Breast self-examination but there is paucity of data related to skill development on BSE technique. With this aim the present study was done to focus on skill development of community women on breast self-examination.

Aims and Objectives

Aim:

To administer Self Breast Examination skill to women in the community and evaluate its effectiveness

Objectives:

a. To assess the knowledge and practice about self-Breast examination among reproductive age group women in the community.

b. To study the change in awareness on self-Breast examination after teaching session.

Materials and Methods

Study Design: Community-based Cross-sectional study.

Study Area: The study was carried out at Urban Health Centre, Gokulpuri which is the field practice area of Department of Community Medicine, Maulana Azad Medical College, New Delhi.

Study subjects: Reproductive age group women aged between 15 to 45 years who are residents of the study area were included.

Study period - 6 months

Inclusion Criteria : All women between the age of 15 to 45 years residing in the study area for last one year and who gave consent to participate.

Exclusion Criteria: Participants unable to understand Hindi/English and associated with severe debilitating illness or mental health problem.

Sample size: At 95% confidence interval and according to Madhukumar's[7] study 18% having some knowledge about breast cancer/breast self-examination, and 20% increase in knowledge after lecture and demonstration. So estimated sample size was 161 by using the formula $n = (Z\alpha/2 + Z\beta)^2(p_1q_{1+}p_2)/(p_1\text{-}p_2)$. Due to Covid-19 restrictions, a convenient sample of 104 reproductive age group women was taken by systemic random sampling.

Study Instrument: Data was collected through detailed interview with the help of a predesigned, pre-validated and pretested questionnaire which included questions regarding socio-demography, knowledge, and self-Breast examination technique. About 5 to 7 women were asked to come to Urban Health Centre to attend the health education session for 30 minutes. The session included administration of Pre test followed by power point presentation and video which covered various aspects related to breast self-examination as well as demonstration of breast self-examination on dummy

breast model for 15 minutes followed by post-test which included assessment of their skill to do self breast examination on dummy breast model.

The dummy breast model has been acquired from Mamma Care Foundation based in USA which is an organization which provides a validated and standardized model for teaching and training on clinical breast examination. This model was used to deliver training to participants. The model has been approved and supported by National Cancer Institute USA. This model has been extensively used globally for skill-based training on clinical/self-breast examination including Vardhaman Mahavir Medical College and Safdarjung Hospital, New Delhi.

Statistical Analysis

The data was cleaned and entered in MS Excel spread sheet and analyzed using IBM SPSS Statistics Version 21.0 software (Chicago). Data was expressed in percentage and proportions and were displayed in appropriate tables and figures. Appropriate statistics was applied to achieve desired results (Mcnemar's and Chi square test for pre and post-test comparison). The level of significance was set at 5%. All P-values less than 0.05 were treated as significant.

Ethical Clearance: Written and informed consent were taken from all study subjects. The study was initiated and conducted after obtaining Ethical approval from the Institutional Ethics Board of Maulana Azad Medical College. Confidentiality of the data collected was maintained and data was used only for the study purpose.

Results

A total of 104 participants underwent Model Based learning of Breast Self-Examination. Age of participants in this study ranged from 15 years to 45 years. According to the present study, majority of women 29.8% belonged to age group between 25 years to 30 years. Out of total 104 participants about 12.5% were uneducated and more than 50% were educated beyond high school and more than 90% were employed. As per modified Kuppuswamy's scale, women belonged to various socio economic status as depicted in (Table 1).

Analysis of scores obtained in assessment of Skill acquired by participants revealed that a mean Pre-test score of 1.91±2.25 which was improved to 6.10±0.33 in Post test score (Figure 1). This improvement in scores for skill acquisition was found to be statistically significant with $p<0.001$. Range of Pre and Post test score was 0-6 and 6-8 respectively.

Analysis was done on responses given by Participants on practices of Self Breast examination prior to attending Self Breast Examination session. Two third of participants have never performed Self Breast examination prior to participating in this study. Appropriate time for breast self-examination i.e. 5 days after menstruation was known to only 12 (11.54%) women which increased to 94.24% in post-test. Only 24 women (23.08%) knew that self-breast examination should be done once in a month which increased in post-test to 90.38 %. Only 18.27 % responded that self-breast examination should be performed after 20 years of age which increased to 92.30% after training session. (Table 2)

On checking their skill before training session, it was observed that only 30.77% used palmar aspect of pulp of middle three fingers to palpate the breast which increased to 97.12% in post-test observation (Figure 2). Only about 34.62% palpated all quadrants of the breast which increased to 97.12% after the training session. Similarly, only 30.77% checked for nipple discharge in pre-test which increased to 98.08% in post-test. Only 30.62% of the participants correctly palpated the lumps in the given model which increased by 98.24% after giving skills. (Table 2) About 85% were aware that they should visit a doctor if they notice any breast abnormality.

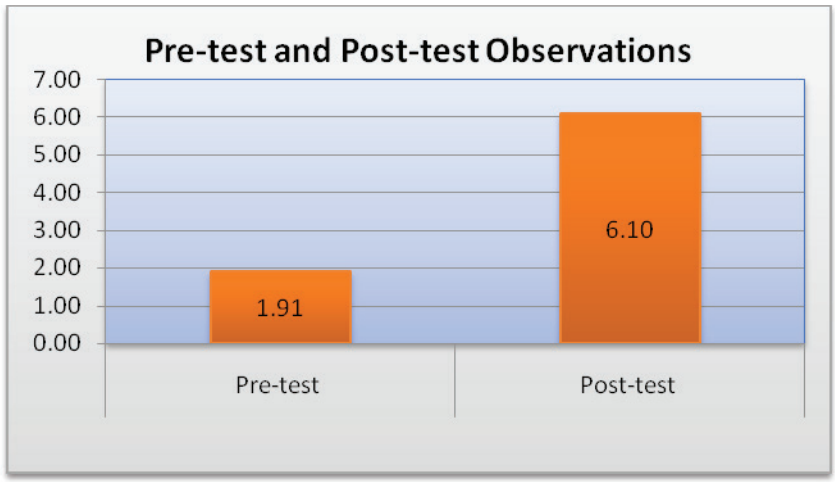

Figure 1: Comparison of pre and post test scores on SBE practice & Skills acquisition by participants (n=104)

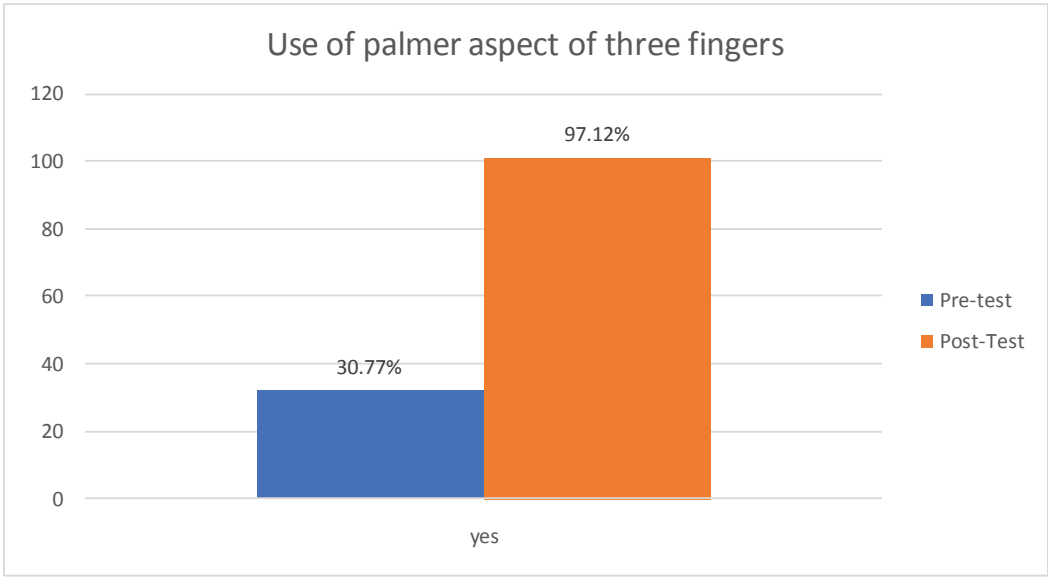

Figure 2: Use of Palmer aspect of middle three fingers by study Participant in pre-test and post-test (n=104)

Table 1: Socioeconomic status of participants (n=104)

Socioeconomic status (Modified Kuppuswamy Scale)		
	Frequency	**Percent**
Upper	4	3.8
Upper Middle	31	29.8
Lower Middle	34	32.7
Upper Lower	33	31.7
Lower	2	1.9
Total	104	100.0

Table 2: Comparison of pre and post test scores on Self Breast Examination practice & Skills acquisition by participants (n=104)

Assessment	Pretest	Posttest	P value
Knowledge / Practice	%	%	
Appropriate time for breast self-examination?	11.54	94.24	<0.0001
Periodicity of SBE being done?	23.08	90.38	<0.0001
Age to start performing SBE	18.27	92.30	<0.0001
Skill	%	%	
Used palmer aspect of 3 fingers	30.77	97.12	<0.0001
Palpated all quadrants of breast	34.62	97.12	<0.0001
Checked for nipple discharge	30.77	98.08	<0.0001

Discussion

It has been observed that among all the screening methods, breast Self-Examination is the best method for screening of breast Cancer, which is also the cheapest and convenient method. This can be practiced by woman herself. Appropriately practice of Breast self-examination (BSE) will enable a woman with knowledge; skills will empower her in evaluation of breast herself resulting in early reporting of breast cancer to a heath centre and thereby result in their early treatment which will in turn increase their chances of survival.

A total of 104 participants underwent Model Based learning of Breast Self-Examination, majority of women 29.8% belonged to age group between 25 years to 30 years. More than 50% of the women were educated and most of them were employed (more than 90%). As per modified Kuppuswamy scale, women participants mainly belonged to lower middle (32.7%) and upper lower (31.7%) socio-economic status. Regarding the skill on self breast examination present study revealed that the mean Pre-test score was 1.91±2.25 which improved to 6.10±0.33 in Post test score. This improvement in scores for skill acquisition was found to be statistically significant with $p<0.001$. This finding is consistent with the finding of John Molly et al study[10].Practice about Breast Self-Examination are very low in the present study, two third of participants have never performed Self Breast examination prior to participating in this study this finding is consistent with what was seen in a study done by Rakesh Singh et al.[11]A similar study was done in Andhra Pradesh which revealed that only 2.4% of the participants were practicing BSE[12]. This finding was less than what was observed in our study.

The finding suggests that the importance of self-breast examination is very low among our community women and therefore proper training and health education programmes should be initiated at grass root level to spread the awareness about cancer breast and self-breast examination. The fact that early diagnosis and treatment of cancer breast can increase the cure and chances of survival needs to be emphasized among community women.

Appropriate time for breast self-examination i.e. 5 days after menstruation was known to only 11.54% women which increased to 94.24% in post-test. A study done by Khokhar A[9]revealed that only 1.36% of participants knew correct time of self-breast

examination which was low as compared to our study. Only 23.08% women knew that breast self-examination should be done once in a month which increased in post-test to 90.38 %. A study done by Chaudhary et al[13] and Khokhar A[9] revealed that only 12% and 13.4% of the participants practiced self-breast examination once a month which was low as compared to present study. Only 18.27 % responded that breast self-examination should be performed after 20 years of age which increased to 92.30% after training session. The results in our study is comparatively better than other studies which could be due to a different study setting and also due to the fact that more than 50% of our study participants were educated beyond high school.

We have observed in present study that though results in pretest were poor there was substantial improvement in post test which was done after the training session which indicates that there is definitely a need to create awareness about self-breast examination in the community.

On checking their skill before training session, it was observed that only 30.77% used palmar aspect of middle three fingers to palpate the breast which increased to 97.12% after demonstration of self-breast examination. Only about 34.62% palpated all quadrants of the breast which increased to 97.12% in post-test observation. The pre test results shows that correct method of performing self-breast examination among women in the community were minimum; this finding was also consistent with studies done by Shaista et al[12] and another study done by Puri et al[14] in which 8% of women correctly performed self-breast examination. Present study shows only 30.62% of the participants correctly palpated the lumps in the given model which increased by 98.24% after providing skills on dummy breast model. A study done by Apeksha P et al[15] also revealed that less than half participants (37.86%) correctly identified the lumps. Post intervention about 85% were aware that they should go to doctor if they notice breast abnormality. This finding was coherent with a study done by Syed Arman Rabbani et al[16] which revealed that women were more positive towards medical help-seeking after post-test. Present study reveals that there was better ability to perform breast examination after demonstration in post test. The study also exposes the fact that irrespective of level of education women can be trained on self breast examination.

Conclusion

The present study shows that practice of breast self- examination among women were very less in the community women. Thus, structured and planned teaching or training programme on self breast examination was found to be effective in creating awareness and development of skill in community women in India. Therefore it is necessary for health personnel to intensify health education on cancer breast and also provide skill regarding technique of doing breast self- examination. Early detection of cancer breast will also reduce financial burden on health sector and thus it will help in improvement of economy of our country.

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References

1. Breast cancer statistics [Accessed October 16, 2020]. Available from: https://www.wcrf.org/dietandcancer/cancer-trends/breast-cancer-statistics
2. World Health Organization. Breast cancer: prevention and control. [Accessed October 16, 2020]. Available from: https://www.who.int/cancer/detection/breastcancer/en/
3. Ferlay J, Shin HR, Bray F, Forman D, Mathers

C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. Int J Cancer. 2010 Dec 15;127(12):2893-917.

4. Agarwal G, Ramakant P. Breast cancer care in India: The current scenario and the challenges for the future. Breast Care (Basel) 2008;3:21–27
5. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68(6):394–424
6. Gupta SK, Pal DK , Garg R et al. Impact of a Health Education Intervention Program Regarding Breast Self Examination by Women in a Semi-Urban Area of Madhya Pradesh, India. Asian Pac J Canc Preven.2009;10: 1113-7.
7. Madhukumar S, Thambiran UR, Basavaraju B, Bedadala MR. A study on awareness about breast carcinoma and practice of breast self-examination among basic sciences' college students, Bengaluru. J Family Med Prim Care. 2017;6:487-90.
8. Saunders KJ, Pilgrim CA, Pennypacker HS. Increased proficiency of search in breast self-examination. Cancer. 1986;58 (11): 2531-7.
9. Khokhar A. Level of awareness regarding breast cancer and its screening amongst Indian teachers. Asian Pac J Cancer Prev. 2009; 10: 247–50.
10. Molly J, Mercy PJ. Effectiveness of a structured teaching programme on knowledge of breast cancer and skill of breast self-examination: a quasiexperimental study in rural women. Int J Community Med Public Health. 2016 Oct;3(10):2940-3.
11. Singh R,TurukA. A study to assess the knowledge regarding breast cancer and practices of breast self-examination among women in urban area. Int J Community Med Public Health. 2017 Nov;4(11):4341-7.
12. Kommula ALSD, Borra S,KommulaVM. Awareness and Practice of Breast Self Examination among Women in South India.Int.J.Curr.Microbiol. App.Sci 2014; 3(1): 391-4.
13. Choudhary UK, Srivastava R, Fitch MI. Breast cancer detection practices of south Asian women: knowledge, attitudes, and beliefs. Oncol Nurs Forum, 1988;25:1693-701.
14. Shaista A, Madhavi M. A study to assess knowledge, attitude of breast cancer and practice of breast self-examination in females of self help groups (SHGs) in Tribal area of Raigad district. Int J Curr Med appl Sci. 2016; 11: 86-93.
15. Puri S, Mangat C, Bhatia V, Kalia M, Sehgal A, Kaur A. Awareness Of Risk Factors And Aspects of Breast Cancer Among North Indian Women. The Internet J Health. 2008;8(2):1
16. Paunikar AP. Hrishikesh A, Mohan K. Doibaleet al. Knowledge, attitude and practices of women towards breast cancer in the field practice area of urban health training centre, Aurangabad, Maharashtra. Int J Community Med Public Health. 2017 Oct;4(10):3659-63.
17. RabbaniaSA , Khalaf Al MarzooqibAMS, Sroujia AEM et al. 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 7 (2019) 600–5