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AN INTERVENTIONAL STUDY TO DETERMINE THE EFFECT OF HEALTH EDUCATION ABOUT BREAST SELF EXAMINATION AMONG FEMALE TEACHERS IN A CENTRAL INDIAN CITY.

Community Medicine

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ABSTRACT

Introduction: Breast self examination (BSE) being an effective, affordable and self administered screening technique for breast cancer is being extensively taught to women and also researched world over. The research work done in India on knowledge and its acquisition about this technique is very scarce. This study thus aims to compare the change occurring in knowledge, as a result of education intervention among the female teacher population of urban central India.

Materials and Methods: The current study is an interventional before and after comparison of knowledge about BSE of 47 female teachers of a professional college selected on first come first consented basis and with aim of reaching estimated sample size of 40 (with 15% estimation of non-response rate). The study utilizes a pretested questionnaire prepared for pre-post assessment including mean score.

Result: All of the key indicators had difference in percentage of positive responses between pre and post intervention of near or more than 50%. A significant increase was estimated in knowledge levels of participants on BSE after intervention (P=5.60E-13).

Discussion: The current study has more emphasis on indicators directly based on BSE. The pattern of answers was revealing in terms of need of educational intervention. The finding of current study may be construed keeping in mind its uncontrolled interventional design and focusing educated teachers of professional college. It may not represent all the women of reproductive age group but may represent the educated middle aged population emphasizing there need for this especial education.

KEYWORDS

Interventional, BSE, Education, Female Teachers.

Introduction

Breast cancer has been a global health issue and is a leading cause of death among women worldwide (Althuis et al, 2005; Shibuya et al,2002; Hortobagyi et al, 2005). Breast cancer is the most common cancer in Indian cities (Agarwal & Ramakant 2008).

Globally, an estimated 1.7 million females were diagnosed with breast cancer, about 522,000 women died from it in 2012 (Birhane et al, 2017). Female aged 50–69 are the most likely to develop breast cancer (Bogusz et al, 2016). Breast cancer is one of the world's leading cause of mortality in women in the age group of 35 years of age or more (Stager, 1993). Carcinoma of the breast is an important health problem with its high morbidity and mortality (Maurer, 1997). The primary factors which increase risk of breast cancer in general women population include certain inherited gene mutations, a personal family history of breast cancer, and hyperplasia in biopsy-confirmed (Dündar et al, 2006).

Some Other factors that increases breast cancer risks include early menarche and, late menopause, recent use of oral contraceptive pills, postmenopausal hormone replacement therapy, no children or having the first child after age 30, radiation exposure, or consumption of alcoholic beverages (Dündar et al, 2006; Lee et al, 2004). Factors that decrease the breast cancer risks include breastfeeding, exercise, maintenance of a body weight (Kushi et al, 2006; Endogenous Hormones Breast Cancer Collaborative Group, 2003). Early identification and prompt treatment offers a chance of long-term survival. Secondary preventive methods includes mammography, breast self examination (BSE) and clinical breast examination for early detection of breast cancer (Smith et al, 2006). The American Cancer Society (ACS) recommends clinical breast examination and mammography in the early detection of breast cancer (Fung, 1998).

Women who do BSE are benefitted in two ways; firstly, women become familiar with the appearance and the feel of their breast and can detect any abnormalities in their breasts as early as possible (Smith et al, 2003). It is estimated that 90% of the times breast cancer is first noticed by the person herself (Doshi et al, 2012). Also, several studies have shown that various barriers to diagnose and treat can be addressed by increasing women's awareness of breast cancer (Robles & Galanis 2002; Montazeri et al, 2008). Many studies have reported education levels of participants being an important variable associated with awareness (Robles & Galanis 2002; Montazeri et al, 2008, Bogusz et al, 2016, Singh, 2017). Whether this reported awareness is real and get translated into knowledge, remain unclear. This study thus aims to compare the change occurring in knowledge, as a result of education intervention among the female teacher population of urban central India. Furthermore, not a single study from central India has been published addressing this particular important issue related with women's health.

Materials and Methods:

Study design and setting: The current study is an interventional before and after comparison of knowledge about BSE. The current study was conducted in a central Indian city among female teachers of a professional college for a period of 3 month between 1st August2016 to 31st October 2016.

Inclusion and exclusion criteria: All female teachers whose ages were more than 35 years were included in the study. Those who were pregnant, lactating, suffering from breast diseases, and were on leave were excluded from the study.

Tools for intervention: A pretested, structured questionnaire having 13 main item about knowing breast diseases, risk factors symptoms; preventive measures, knowing about reason, techniques, time and frequency of BSE, when to consult physician, what are the alternatives, what further diagnostic technique are available as well as some questions regarding their attitude, practice and socio-demographic variables were developed by the researcher. Each item with all correct answers and yes answer was given a point thus allowing researchers to calculate a composite mean score.

The questionnaire was utilized for interviewing the participants after due informed consent had been obtained from them as pre intervention and post intervention test of knowledge. Education sessions in form of lectures, seminars, pamphlet, posters and Audio-Visual aids were used as intervention tools.

Sample estimation:

$H_{0:}\ \mu_1 = \mu_{2;}$
$H_1 : \mu_{1 \le} \mu_2$

With $\alpha = 0.05$
$\beta = 80\%$
$N = (z_\alpha + z_\beta)\,2 / (\delta / \sigma)^2$
$= (z_\alpha + z_\beta)\,2 / \Delta^2$

Where, μ_1 & μ_2 –pre-post test mean score respectively
N is sample size
$\delta = \mu_1 . \mu_2$

σ, is the standard deviation of the differences within pairs.
Δ-effect size smallest is 0.2 and taken into consideration for this study (Cohen, 1988)

Hence the sample size thus determined to be 40 with consideration of 15% drop out/non-respondents the final sample size was determined to be 47.

Methodology:
In this study, firstly, the questionnaire was prepared for pre-post assessment and was validated by pretesting it in a small group with similar socio-demographic profile. Secondly, Teachers were selected and enrolled in to the study (with appropriate informed consent) till the desired sample size was reached. Next, the intervention was planned which included three education sessions over the period of 3 month (one every first week of the month) supplemented by posters, pamphlets, video and audio education material. Lastly, the questionnaire was administered to the participants one day before the first education session and one week after the last education session.

Methods of data analysis:
Data was complied in MS-Excel. Frequency, percentage, and average scores are utilized for data description and further analysis. Furthermore, paired samples t-test was computed for comparing the differences.

Results
All of the enrolled participants completed the questionnaire on breast self examination before and after the intervention and result was prepared. A description of socio-demographic characteristics of study population in depicted in **Table.1.**

Table.1: Socio-Demographic characteristics of Participants

Age Group (years)	N	%
35-38	22	46.81
39-42	22	46.81
43-46	1	2.13
47-50	1	2.13
>50	1	2.13
Marital Status		
Married	24	51.06
Unmarried	23	48.94
Age at Pregnancy		
<20	0	0
20-25	5	10.64
25-30	24	51.06
30-35	5	10.64
35-40	13	27.66
Alcohol Use		
Yes	8	78.72
No	37	17.02

Among the 13 items of the pre-post intervention questionnaire, 8 of the item showed key improvement in terms of proportions in area of awareness about breast disease, various signs of breast diseases, about prevention and precaution of breast diseases, awareness about BSE, why BSE should be done, awareness about time to perform BSE, regular practicing of BSE and awareness about other methods to diagnose breast diseases. **(Table.2)**

Table.2: Frequency and percentage of pre and post interventions responses for key indicators

S. No.	Indicators	Responses	Pre-intervention		Post-intervention	
			Frequency	%	Frequency	%
1	Awareness about breast disease	Yes	17	36.17	40	85.11
		No	30	63.83	7	12.77
2	Know various signs of breast diseases*	Yes	10	21.28	34	72.34
		No	37	78.72	13	27.66
3	Know about prevention and precaution of Breast diseases.*	Yes	5	10.64	37	78.72
		No	41	87.23	10	21.28
4	Awareness about BSE	Yes	8	17.02	45	95.74
		No	39	82.98	2	4.26
5	Aware why BSE should be done*	Yes	3	6.38	31	65.96
		No	44	93.62	16	34.04
6	Knowledge about time to perform BSE	Yes	6	12.77	39	82.98
		No	41	87.23	8	17.02
7	Regular practicing of BSE+	Yes	5	10.64	35	74.47
		No	42	89.36	12	25.53
8	Know methods to diagnose breast diseases*	Yes	9	19.15	33	70.21
		No	37	78.72	14	29.79

*- some of the response sets were in form of choosing among the following. They are converted into yes and no format for description and understanding it easily. (yes for those who pick all correct answer.+ performing at least once in a month.

All the key indicators had difference in percentage of positive responses between pre and post intervention of near or more than 50%; showing a clear increase in level of their knowledge after educational intervention.

A mean score along with respective standard deviations were calculated. A significant increase was estimated with paired sample t test; in knowledge levels of participants on breast cancer and BSE after intervention (Table.3).

Table.3. Analysis of pre and post intervention score oparticipants

	N	Mean	SD	SE	T-score	P
Pre-intervention score	47	7.87	2.80	0.286	9.68	5.60E^{-13}
Post- intervention score	47	10.70	1.44			

Discussion
Studies using educational interventions are being used as tool for finding effective ways to alter the knowledge level of participants (Bala DV, 2011; Shahrbabaki, 2012; Güçlü, 2013). The topic of focus in this study was knowledge of BSE, along with various aspects of breast diseases, an important method related with women health about which knowledge is gained mainly through health care provider (Bala DV, 2011; Singh R, 2017; Birhane et al, 2017; Nemenqani et al, 2014). Many studies are conducted on assessment of knowledge related with breast disease and that of BSE. (Bala DV, 2011; Singh R, 2017 El-Sherbiny & El-Shorbagy, 2014 Güçlü, 2013; Bogusz et al, 2016; Nemenqani et al, 2014; Shahrbabaki, 2012) Some of these studies were having interventional design similar to the current study. (Bala DV, 2011; Güçlü, 2013)

The current study had found out 36.17% of participants were aware about breast diseases before intervention which increased to 85.11% as assessed by post intervention questionnaire thus an increase in 48.9%. The base line awareness was similar to finding of study of female medical student at Egypt about their knowledge attitude and practice towards breast cancer and its screening revealing 35% of participants were not having any awareness about breast diseases; causes and risk factors (El-Sherbiny & El-Shorbagy, 2014). This is in contrast with some other studies showing either as low as 26.8% to 52% at baseline (Bala DV, 2011; Güçlü, 2013; Singh R, 2017).

The current study has more emphasis on indicators directly based on BSE. The foremost and most obvious question was whether they have any prior knowledge regarding this technique. The pattern of answers was revealing in terms of need of intervention at only 17.02% and the results of intervention showing an increase of 78.72% further fostering its importance. As a result of intervention 95.74% of participants had awareness about BSE; which is by far the most improved indicators among all those in this study.

In an educational intervention study of breast self examination of women beneficiaries of urban health centers of west Zone of Ahmedabad, it was observed that knowledge regarding BSE was only 26.8% pre- intervention and had increased by 64% to 90.8% post-intervention (Bala DV, 2011)

In present study 6.38% of the participants correctly knew why BSE should be done, the lowest scored indicator in the whole study, which on intervention increased to 65.96% with a net improvement of 59.58%. Furthermore a probing question about correct time of performance yielded 12.77% positive responses before intervention against 82.9% after it with a consequential rise of 70.13%. In a Study conducted in western India, 52% of subjects knew why BSE is important (Singh R et al, 2017). Another study among female medical student in Saudi Arabia yielded that about 46.8 knew the correct timing to do BSE as 7th day after start of menstruation (Nemenqani et al, 2014).

In a study at turkey, of impact of health education on improving women's knowledge and awareness of Breast cancer and breast self examination, 47% of women practiced BSE (Güçlü, 2013). In another study of female undergraduate students at ethopia about practices of BSE and associated factors about 17% of participants practiced BSE regularly (Birhane, K et al, 2017)

This is in contrast with finding of current study which showed that only 10.64% of participants were regularly practicing pre-intervention as compared to post-intervention percentage of 74.47%. However, in another study of effectiveness of planned teaching intervention on knowledge and practice of breast self-examination among first year midwifery students in Ethiopia only 13.1% performed breast self - examination on a regular monthly basis (Abera H, 2017)

The finding of current study may be construed keeping in mind its uncontrolled interventional design and focusing educated teachers of professional college. It may not represent all the women of reproductive age group but may represent the educated middle aged population emphasizing their need for this especial education.

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