Health Beliefs Related to Breast Cancer and Breast Self-Examination among Indian Women: Effect of Educational Program

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Abstract

Background: Breast cancer is believed to be the most widespread carcinoma all over the world and the most frequent type of carcinoma among females in India. Approximately 40% of breast lesions which lead to breast cancer is detectable by breast self-examination (BSE). The identification of the barriers of early detection and the baseline knowledge on breast cancer symptoms, risk factors, BSE method and also the effectiveness of a health education intervention among females in Bangalore, India are the main purposes of this research.

Methodology: The study was composed of totally 500 female participants from five different institutions in urban and rural of Bangalore in 2020. Assessing baseline knowledge on breast cancer and BSE using self-administered questionnaires as well as administering interventional health education in the form of a lecture, pamphlets and illustration of proper method of conducting breast self-examination using video tutorials.

Conclusion: The baseline knowledge about breast cancer and BSE practice among participants for early detection was found to be insufficient. However, we witnessed a great progress after immediate and follow up intervention. Periodic interventions are essential to prevent relapsing of certain types of barriers.

Key Words: *Breast cancer, Breast self-examination, Educational intervention, Early Diagnosis, Follow up.*

Introduction

Cancer is considered to be the number one cause of death in many countries. Countless number of people are annually diagnosed with cancer all over the world, and more than half of the patients ultimately lose their lives due to this awful disease. Breast cancer is considered as the most common cancer in women. Globally, it was estimated that 2.1 million females were diagnosed with breast cancer in 2018, the last year of incidence data collection [1]. It is a significant collective hurdle in both low-health expenditure and mid-level countries. In India, the rate of breast cancer in women, was 27.7% in 2018 with mortality rate of 23.5% [2]. It is the most wide-spread cancer among women who were residing in the urban areas of India [3]. Patients who were diagnosed at an early stage of breast cancer have a better prognosis and good survival rate [4]. However, the majority of the women in India present with an advanced stages of breast cancer, which declines the survival rates in India, which stems from the failure of early detection programs, causing a great number of females presenting with late-stage disease [5].

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Lack of education on breast cancer and breast screening techniques used for early diagnosis is recognized as one of the major barriers to early detection of breast cancer [6]. In the United States, the survival rate has increased which might be related to improvement in preventive measures and diagnosis of breast cancer in early stages. However, the mortality rate of breast cancer is increasing in most regions of the world particularly in low-income countries. Among different types of breast screening, Breast self-examination (BSE) is an easy, fast and free, non-invasive procedure that requires no special materials/equipment. It is also an effective diagnostic method for breast cancer that only takes five minutes to inform [7]. There is evidence that women who correctly practice BSE on monthly basis are more likely to detect breast cancer in the early stages of its development, and early detection has been confirmed to influence early treatment and to yield a better survival rate [8]. These findings highlight the importance of imparting proper knowledge on breast cancer and BSE and the barriers to early detection and implementation of preventive strategies, including education of the target population about breast cancer and BSE. Hence, this study is planned with the aim to assess and identify the barriers of early detection and the baseline knowledge on breast cancer symptoms, BSE method and risk factors of breast cancer and also the effectiveness of education on breast cancer and BSE in the Indian metropolitan women residing in Bangalore, Karnataka.

Material and Methods

Participants:

The study included women from Bangalore in the age group of 17 to 65 years and with no history of breast cancer. Non-random sampling method was used in this study and 500 women who gave their consent to participate in the study were included.

Study tools, techniques and procedure:

The research was carried out in order to investigate the knowledge of participants that was in association with breast cancer symptoms, risk factors, BSE technique and timing as well as obstacles for finding medical assistance. The efficacy of educational interference (in form of lecture, pamphlets and demonstration of suitable way of implementing BSE using video tutorials) in three phases (Pre-intervention phase and the post intervention phase itself is divided into two sections; immediate phase and three-month period). The following four steps describe the complete research procedure:

Step I:

A pre-designed, structured, and self-administered questionnaire was utilized for data collection. The first section of the questionnaire constituted demographic details of participants [Table 1]. The second section was comprised of 19 questions, the first 16 questions concentrated on knowledge evaluation of symptoms and risk factors of breast cancer and BSE method and training [Table 2, 3, 4]. The other three questions described the obstacles for seeking medical help [Table 5]. At the pre-intervention phase, participants were evaluated for baseline knowledge of breast cancer and BSE and then pamphlets were given out in which importance of breast cancer sign and symptoms, risk factors of breast cancer, importance of early detection by BSE and the proper method of conducting BSE were discussed. The study participants' communication addresses were collected to avoid a loss to follow up.

Step II:

This was followed by a brief workshop as well a presentation concerning the sign and symptoms, risk factors of breast cancer and its screening methods with more focus on BSE method. The attendees were shown a brief instructive video. The content of the film revolved around the significance of BSE, ways of executing and the best time for BSE. Enquiries from the participants have been invited.

Step III:

After education, first post-interventional assessment was done to evaluate the increased awareness level of breast cancer and BSE using the same questionnaire

among respondents.

Step IV:

After a three-month period, second post-interventional assessment regarding breast cancer and BSE knowledge was done.

Statistical analysis:

The statistical software for social sciences (IBM SPSS statistics 20) was used to analyses data. Descriptive statistics (i.e., frequencies, percentages, mean, standard deviation) were used to describe the demographic features and the Chi-square test was used to explore associations. P-value less than 0.05 was considered significant in all analyses.

Ethical statement:

Before entering the study, all the study participants were required to give their informed consent regarding the study benefits, risks, significance. The signed consent of every participant was recorded before the administration of the questionnaire. The study was approved by the Ethics committee of PES College of Pharmacy (PESCP/2015-16/PPD-PHD-01).

Result:

Sociodemographic data:

The survey involved a community-based research that included 500 women. The median age of women who participated in the study was 23.41 ± 5.063 years. The majority of the respondents 438 (86%) were in the age group of 17 to 25 years. The vast majority of the respondents 359 (71.8%) were students. Only 37 women (7.4%) were married and 463 (92.6%) were unmarried [Table-1].

Awareness of Breast Cancer symptoms and risk factors:

[Graph 1] provides an evaluation of the knowledge of breast cancer manifestations and risk factors, and showed that the perception of common breast cancer symptoms (pain, discharge or bleeding from the nipple, a lump or thickening in the breast) and seven risk factors (the use of HRT, alcohol consumption, smoking, pregnancy in old age, overweight, positive family history and physical activity) improved significantly after the intervention. 71.4 % of them did not have any knowledge whatsoever that pain cannot be attributed as one of the main causes of breast cancer. In addition, at the pre-intervention stage, roughly 51.4% and 31.8% of women stated that only discharge and lump formations were the signs of breast cancer respectively and the remaining half had no knowledge of the fact that lump or thickening of breast is one of the major symptoms of breast cancer [Graph 1].

BSE Skill Evaluation:

After the comparison of correct percentage of pre-training and post-training responses in regards to the knowledge of immediate and a three-month follow-up BSE method and timing, it was determined that there was a statistically significant difference between the pre-training and post-training knowledge levels. When comparing the percentage of pre-training and the three-month follow-up awareness, an improvement in the correct response percentage was determined in the three-month follow-up period. The overall BSE knowledge increased from approximately (38.5%) to (83%) i.e., a twofold improvement was seen in the BSE knowledge even after three months of the intervention, due to the impact of health education provided for the respondents [Table-2], which has been found to be statistically significant ($P < 0.05$).

Barriers in seeking medical help:

The most significant obstacles to find medical care were multiple being too scared to go and visit doctor 361 (72.2%), followed by lack of confidence to speak about symptoms 357 (71.4%) and being too ashamed to go to see a physician 342 (68.4%) [Table-3].

Table-1: Demographic details of participants

Age group	N (%)
17 to 25 Years	438 (87.6)
26 to 35 Years	47(9.4)
36 to 45 Years	12 (2.4)
46 to 55 Years	2 (0.4)
56 to 65 Years	1 (0.2)
Marital status	
Married	37 (7.4)
Unmarried	463 (92.6)
Education	
PUC	12 (2.4)
Diploma	58 (11.6)
Bachelor Degree	324 (64.8)
Master	72 (14.4)
Doctorate	34 (6.8)

Table-2: Assessment of knowledge BSE – Method and Timing

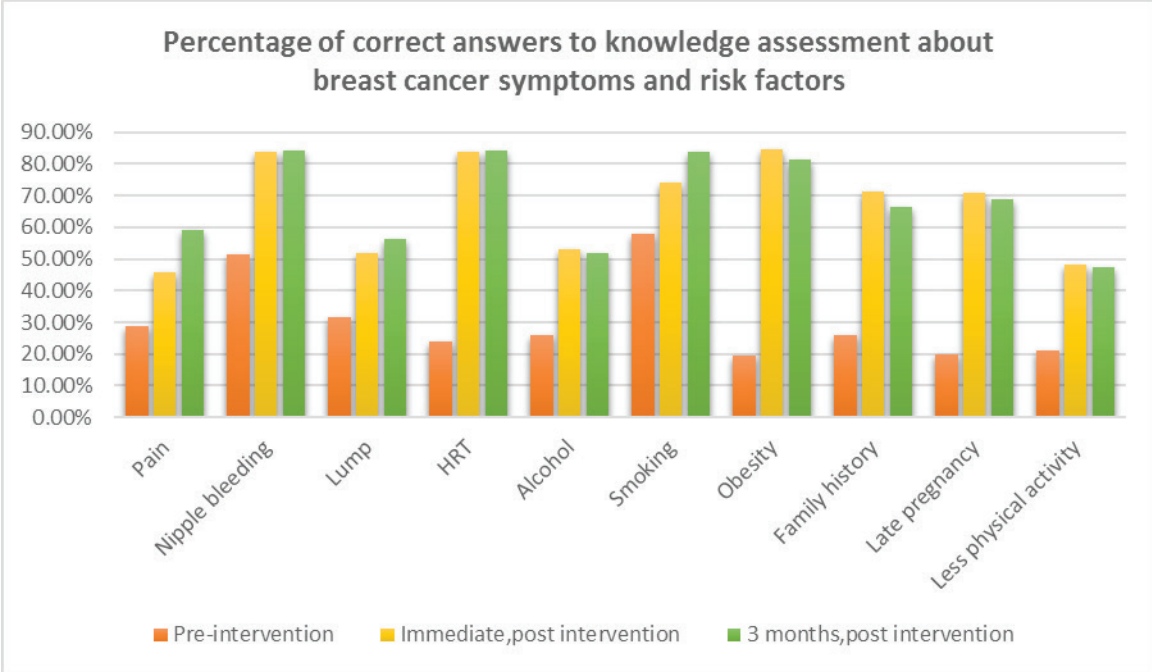
BSE is recommended to be done monthly	Before intervention	Immediate, post-intervention	3months, Post-intervention	p-Value
Correct N (%)	*207 (41.5)	460 (92)	447 (89.4)	**0.000
Suitable time to do BSE is 7th day after the start of menstruation				
Correct N (%)	*146 (29.3)	412 (82.4)	394 (78.8)	**0.000
Axilla should be examined while doing BSE				
Correct N (%)	*141 (28.3)	436 (87.2)	416 (83.2)	**0.000
BSE could be done while taking bath				
Correct N (%)	*141 (28.3)	424 (82.8)	416 (83.4)	**0.000
BSE is done in front of the mirror only				
Correct N (%)	*227 (45.4)	409 (81.8)	394 (78.8)	**0.000
BSE could be done in the supine position				
Correct N (%)	*293 (58.7)	435 (87)	418 (83.6)	**0.000

*Correct response ** A comparison between before education and 3 months after education

Table-3: Barriers in seeking medical help

	Before intervention	Immediate, post-intervention	3months, Post-intervention	P-Value
Too ashamed to go and see the doctor	342 (68.4)	8 (1.6)	42 (8.4)	**0.000
Too scared to go and see the doctor	361 (72.2)	11 (2.2)	10 (2)	**0.000
Not feeling confident talking about my symptom with the doctor	357 (71.4)	28 (5.6)	24 (4.8)	**0.000

** A comparison between before education and 3 months after education



Graph-1. Percentage of correct answers to knowledge assessment about breast cancer symptoms and risk factors.

Discussion

Study participants were evaluated for their knowledge of breast cancer under four different concerns, such as warning signs and risk factors of breast cancer, BSE method and timing and barriers to seek medical help in case of any warning sign.

Knowledge of women on breast cancer symptoms and risk factors:

It is sad to say that the prior knowledge of women participants regarding breast cancer manifestation and risk factors was determined as medium-low level. After the training however, these values increased significantly. This indicates another important aspect of our research, which highlights the importance & effectiveness of the training regarding the knowledge level among female participants after the training on breast cancer and BSE [9].

Regarding risk factors, Smoking (57.8 %) was the most reported risk factor while the vast majority of participants (80.6 %) were not aware of the fact that obesity and having children later on in life (over 40) were also important risk factors for breast cancer [Graph 1]. Prusty RK et al., approved that women in Mumbai were weakly aware of breast cancer risk factors. Obesity was the most common cited risk factor (19%) while early menstruation (5.6%) and late menopause (10%) were among the least common risk factors [10]. Another study by Millat WA, respondent with family history of breast cancer had a slightly higher level of awareness regarding BSE compared to respondents with no family history [11].

Knowledge on BSE Method and Timing:

Our participants were also questioned about BSE practice. It was observed that the majority of the participants in the present study had moderate to poor knowledge when it came to BSE practice. However, it has been significantly improved up to 90% after the education, which highlights the positive changes on the BSE knowledge due to the training regarding BSE [Table 2]. According to Abdul Nazer Ali's research, the general awareness score on BSE knowledge was moderate at baseline and improved drastically after educational program [12]. A similar study by Mehrnoosh assessed the knowledge of women at baseline, 6, and 12 months and reported that education modules of BC and BSE method improved the knowledge scores in the intervention group [13].

Barriers to seek medical help:

In our study, we found various barriers. During the pre-intervention phase it was found that almost 45% of women did not have the confidence to notice a change in their breast, 68% were embarrassed to consult a doctor, 72% were scared, and almost 72% were not confident enough to visit the physician for discussion. Acquiring finally helped to remove obstacles such as embarrassment, fear and lack of self-confidence. After all, cultural characteristics may be treated as the main barriers that can be influential. After education, it was noticed that above 65% of women got confidence and were freed of negative attitudes towards their physician for consultation. Education brought a significant change in their attitude and improved their confidence levels towards breast health [Table 3]. According to Saleha Qasim study, shows the most commonly prominent reasons of not visiting a doctor in time were: busy schedule, embarrassment, anxious to see a doctor, finding it hard to speak with the doctor [14].

Some limitations need to be addressed, when interpreting the results, first of all, a great number of the participants (87.8%) were identified at the age group of 17-25 years and may not be representative of all female of different age group; hence it is recommended to conduct further studies using a wider range of age. We therefore highly recommend that the appropriate and practical training programs should be provided for women through India's health care system.

Conclusion

We witnessed participants' awareness towards breast cancer manifestation, risk factors and BSE for early detection insufficient at the pre-intervention phase, but we found a great advancement in the first and second post-intervention phase. The study emphasizes the fact that breast cancer awareness needs to be raised and individuals must be educated about the significance of BSE practice, which allows breast cancer to be detected in a much earlier stage. The presented data demonstrates a significant perceptual barrier and baseline knowledge regarding breast cancer and BSE among Indian females and demonstrates the ability to provide guidance for seeking the techniques to enhance awareness among Indian females according to their needs.

Acknowledgment: We thank the participants of the study for their valuable time and interest shown in our study.

Conflict of Interest: The authors declare that they have no conflict of interest.

Funding support: The authors declare that they have no funding support for this study.

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